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Modernising British Railways

THE re-equipment and modernisation programme for British Railways is understood to be on the point of being submitted to the Government and may be published early in the New Year. Recent statements by Mr. John Boyd-Carpenter, Minister of Transport & Civil Aviation, in the course of wage negotiations and on other occasions, have left no doubt that the Government regards this capital development scheme as of great importance. It is likely to be well received by Government supporters and it seems that the Opposition will welcome the scheme in principle, whatever points of individual difference may arise. The Bill which has been presented to Parliament to increase the borrowing powers of the British Transport Commission brings those powers to a total of £600,000,000, of which some £250,000,000 has already been spent. The projected capital development plan of British Railways is now estimated to cost more than £1,100,000,000 and therefore shows a considerable increase on previous plans, estimated to cost some £500,000,000. Sir Brian Robertson, Chairman of the Commission, said recently that the plan was aimed at providing this country with the best railway system and service in the world. It is known that there will be provision for additional electrification and extended use of

diesel locomotives. There will, no doubt, also be improvements in signalling and other engineering schemes and further mechanisation in goods depots and elsewhere which will cost just as much and be equally important. Apart from the increased efficiency resulting from improvements in the plant, the announcement of details of the capital development scheme should have favourable psychological effects on railwaymen, who will be encouraged by being helped in their work by the provision of new equipment, and also on actual and potential railway users, whose confidence in the system will be increased.

A Statesmanlike Answer

THE National Union of Railwaymen has been told by Mr. Boyd-Carpenter that he will not intervene in the negotiations between that union and the British Transport Commission over the N.U.R. claim for a wage increase. In a letter to Mr. J. S. Campbell, General Secretary of the Union, the Minister stated last Monday that Government intervention would deal "a serious blow to the negotiating machinery in the railway industry and indirectly in the rest of industry as well." The normal processes of negotiation and arbitration, he said, had not been exhausted; he added that the Government could not properly substitute itself for the Commission as a party to the wage negotiations, and that if agreement on the wages question were not reached, the right course for the N.U.R. was to take its claim to the Railway Staff National Tribunal, so that it might be considered, in the words of the Commission, "on its merits." Mr. Boyd-Carpenter, who last week announced the Government's firm refusal of the N.U.R. suggestion to "repay" to the railways the £124,000,000 "profit" made by the Government during the war—in effect a subsidy—has shown statesmanship. Attempts to short-circuit the negotiating procedure must defeat its purpose, and, in following it, there is still a long way to go before a deadlock is reached; but if the Tribunal should conclude that all or part of the N.U.R. claim should be met, the Commission proposes to consult with the Minister as to the implications in the light of the statutory duty of the Commission to pay its way, taking one year with another.

British Team to Inquire into Rhodesia Railways

FOUR consultants will leave this country early next month to investigate the organisation of Rhodesia Railways. The team, which is expected to be away about two months, will consist of Sir Robert Inglis; and Messrs. F. A. Dadge, Assistant Accountant, Western Region; A. Forester Fielding, District Operating Superintendent, Leicester, and I. C. Forsyth, Works Manager (Locomotives), Crewe, London Midland Region. They are to report on the Rhodesia Railways capital works programme, operating methods, system of administration, and further development and financing. Sir Robert Inglis, besides long service as a railway civil engineer—he was Engineer (Southern Area), L.N.E.R., before becoming Divisional General Manager of the Scottish Area of that system—has a wide railway experience, having advised the Indian Railway Board on a variety of problems during the war, after which he was Chief of the Transport Division in the British Zone of Germany, and later chairman of the ("Inglis") committee on passenger transport in Glasgow. The appointment of the team is in accordance with the recent recommendation by the Rhodesia Railways Board for an inquiry. Sir Andrew Strachan, who becomes Chairman of the Rhodesia Railways Board on January 1, consulted with Sir Brian Robertson, Chairman of the British Transport Commission, on the choice of advisers.

The Johannesburg Conference

FROM the proceedings of the conference of general managers of Central and Southern African railways in Johannesburg, which are summarised on another page of this issue, it is clear that full use was made of the opportunity offered for free discussion of practices and problems. Much credit goes to Mr. D. H. C. du Plessis,

the energetic General Manager of the South African Railway, for convening the conference. In his opening remarks Mr. du Piessis stressed the community of interests of the railway systems of Central and Southern Africa and explained some of the ways in which his own railway was endeavouring to meet the unprecedented economic expansion of South Africa. Centralised traffic control and standardisation were two subjects which aroused much interest; Lt.-Colonel H. B. Everard, General Manager, Rhodesia Railways, and Mr. A. Pereira Leite, General Manager, Mozambique Railways, both expressed their satisfaction with the c.t.c. installations in operation on their systems. Both Mr. A. F. Kirby, General Manager, and Mr. G. Gibson, Chief Mechanical Engineer, East African Railways, contributed usefully to the discussion on standardisation, Mr. Kirby putting forward the idea of a Pan-African conference on the subject.

A New Trans-African Route

SOME interesting particulars were disclosed at the conference of the progress of a new line in the Belgian Congo, which will form part of a new inter-territorial link and much reduce the distance by railway across the African continent. This is the connection between Kamina and Kabalo, 276 miles long, which will join the main Bas Congo-Katanga network—itsself connected with the Benguela and Rhodesian systems—and the Upper Congo-Great African Lakes Railway. The Upper Congo system is at present isolated; its main line runs from Albertville on Lake Tanganyika to Kabalo and Kindu, and there is a detached section further north, from Ponthierville to Stanleyville. The Kamina-Kabalo connection opens up interesting possibilities. It will form a link in a through route from Central Africa to the Indian Ocean, using a ferry service on the lake between Albertville and Kigoma, and the Tanganyika Central line of the East African Railways thence to Dar es Salaam, where, significantly, the Belgians are contributing more than £1,000,000 to the cost of a new berth. The completion of the projected connection between the Kindu-Albertville line and the Ponthierville-Stanleyville section of the Upper Congo company would bring the Congo system to within about 400 miles of the terminus, at Kasese, of the Western Uganda extension of the Kenya-Uganda main line of the E.A.R.

Increasing Line Capacity in Western India

THE Western Railway of India has important works in progress to increase the capacity of the lines serving Ahmedabad, one of the leading industrial and commercial centres on the system and where traffic is steadily increasing. Ahmedabad is an interchange station, where the broad-gauge line from Bombay and Baroda to Kharagoda meets the metre-gauge lines running westwards into Saurashtra and northwards to Jaipur and Delhi. The metre-gauge line to the North is being doubled between Ahmedabad and Kalol, 16 miles, and the Sabarmati and Kanakaria yards are being remodelled. These works will allow more passenger trains to be run on this busy section and facilitate the transhipment of goods between the gauges. South of Ahmedabad the new high-level bridge over the River Mahi on the Anand-Godhra chord line, by which broad-gauge traffic from Ahmedabad to Delhi avoids Baroda, has made possible running throughout the year; formerly traffic was interrupted during the monsoon when the old bridge was submerged for some days at a time. Air-conditioned coaches now run from Ahmedabad to Delhi by the metre-gauge route.

Overseas Railway Traffics

PARAGUAY Central Railway receipts for the week ended October 8 were G.1,141,124, an increase of G.25,046 over the corresponding week of 1953. Receipts rose to G.1,276,396 for the week ended December 3, an increase of G.113,067 on the previous year. The average receipts for the nine weeks concerned were G.1,103,422,

compared with an average of G.1,034,887 for the same weeks of 1953. This was an average weekly increase of G.68,535. On December 3 the aggregate receipts from July 1 stood at G.28,280,370, an increase of G.5,822,294 over the aggregate of G.22,458,076 for the same period of the previous year. Costa Rica Railway traffics for September were colones 1,200,420, a decrease of colones 332,178 compared with September, 1953. In October receipts improved to colones 1,387,171, an increase of colones 61,546 on the figures for October last year.

Small Container Traffic in Europe

THERE is a considerable difference between British and Continental opinion on what constitutes a "small" container. The British version generally has a capacity of over two tons, but very small sizes are met with in Europe, one type having a cubic capacity of less than two cubic feet. The usual sizes range from one to three cubic metres, and the German Federal Railway, in particular, makes wide use of these. Other European railways also own small containers or give special facilities for them to pass over their lines at favourable rates, including low cost, or even free, return of empty containers. The growth of small container traffic has been a feature of railway efforts to meet road competition, and particulars of the containers used are given in an article on another page. The European small container is usually exceptionally mobile, being fitted with a wheeled chassis for easy handling and a device for raising and lowering feet which allow it to stand firmly for loading and unloading. These features make it possible for the containers to be manhandled in situations which might otherwise require a fork lift truck or a small crane, indicating that small containers can be substituted, in suitable circumstances, for pallets.

Transportation in an Atomic Age

ELSEWHERE in this issue we print a synopsis of an address delivered recently in Washington, D.C., on the novel subject of transport as it will be carried on at some future date when atomic energy is available for industrial purposes and for railway traction. The speaker was Mr. Richard L. Bowditch, chairman of the Board, United States Chamber of Commerce, who has excellent opportunities for judging prospective developments in general trade and industry. With the aid of forecasts which Government agencies in Washington are accustomed to make, Mr. Bowditch ventured to estimate the transport situation in 20 years time. He said frankly that political and social disturbances might upset his optimistic outlook on a bustling and prosperous United States in the year 1975, but his bold attempt at prophecy may cause other students of transport to project their thinking forward. Americans like to feel that they are living in a progressive country, but the national economy recovers slowly from the recession which began in the autumn of 1953 and in September, 1954, U.S.A. railway revenues were still falling below the 1953 level by over 13 per cent.

Lightweight Diesel Trains in the West Riding

VERY satisfactory results for the first three-and-a-half months' operation of lightweight diesel trains in the West Riding are announced by the North Eastern Region. The introduction of more frequent services with speedy diesel trains has resulted in an additional 80,000 passengers being carried between Leeds and Bradford, with an increase in takings of £4,558. Between Leeds and Harrogate there were increases of over 28,000 passengers and £3,474 in revenue. The through traffic between Bradford, Harrogate and Knaresborough increased by 14,743 in numbers of passengers and £2,506 in receipts. During the present Christmas period the diesels are being used extensively for shopping in Bradford and Leeds. Train working in the area has been much improved by these units, but the full scheme is not yet in operation; further adjustments will probably be made in the services in 1955, and it is hoped these will lead to improvements in the service.

Economic Forms of Motive Power

IN a paper read before the Railway Students Association recently, Mr. R. F. Harvey, Chief Officer (Motive Power), British Transport Commission, referred to some of the factors which govern the choice of motive power. The main factor, he points out, is the economic one, which includes the capital cost of equipment, relative prices of coal and oil, and national resources for production of electric power. Because of the coal position and other circumstances, it has been found necessary in this country to consider a departure from steam traction, but the decision to use electric or diesel traction must be determined by conditions such as the volume of traffic, and it may be that while electric traction is suitable for certain sections of main line, some less important main, branch, and subsidiary connecting lines could be more economically worked by diesel traction. There is, he believes, a useful field for the multiple-unit railcar, quite distinct from the traffic covered by multiple-unit electric services, and some suburban services, besides sparsely populated areas, could well be served by this form of traction. He visualises a gradual changeover from steam to diesel in various forms, and ultimately, to electric traction on some main lines. A programme is under consideration by the Commission, which will bring the number of diesel shunting locomotives operating on British Railways to 800 by the end of 1957, or about 30 per cent of the total number of locomotives needed for shunting purposes.

Sir Ernest Lemon

NEWs of the death of Sir Ernest Lemon will be received with great regret by the many who knew him well during the course of a distinguished and valued career. He was a man of exceptional powers and versatility; trained as an engineer, he was appointed Operating & Commercial Vice-President of the London Midland & Scottish Railway in 1931, and the improvements he effected during his eleven-year tenure of that office more than justified the late Lord Stamp's judgment in selecting him for the position. Sir Ernest Lemon believed that the only way to reduce operating expenditure was by the introduction of improved methods of handling traffic both on the running lines and in the depots. He therefore reorganised, mechanised, and modernised to the full—the mechanisation of Toton Marshalling Yard being an example of his initiative. Costs were reduced by his modernisation of goods terminals, and increased efficiency and quicker transits were early results of his work in this direction. Indeed, acceleration of train services, both main-line passenger and freight, were a prominent feature of his *régime*.

Nor was he less successful on the commercial side. With Mr. Ashton Davies as Chief Commercial Manager, he introduced modern business principles, and transport was made into a saleable service. To stimulate competition in the staff a "quota league" at stations and in districts was adopted. New methods of handling traffic seen during periodical visits to the United States and Canada further stimulated his ideas on railway problems.

In 1938 a further avenue was opened to his energies. At the express desire of the Prime Minister he was released by the L.M.S.R. board to become Director-General of Aircraft Production for the planning and organisation of the production of engines, aircraft, and equipment, with a seat on the Air Council. Of Sir Ernest Lemon, who had already proved his ability to apply a wide knowledge of engineering and outstanding energy, the Secretary of State for Air was able to state that it would be difficult to overestimate the value of the services he had rendered to the Air Ministry. He received the honour of knighthood in 1941. After his return to the L.M.S.R. he continued to put his talents at the disposal of the Government, and was engaged for a period on a special investigation on behalf of the Minister of Production into the output of certain types of aircraft.

Sir Ernest Lemon provides an example today of no mean order. A product of the age of extreme specialisa-

tion, and by training himself a specialist, he yet possessed the courage to apply his knowledge to fields of activity new to him. He did not allow any fear of failure either to become apparent or to prejudice his acceptance of a fresh task. To him the new and untried presented a challenge not to be ignored.

British Transport Development

ONE of the advantages of a body such as the Transportation Club is that it provides an informal meeting ground for the easy exchange of views by individual members representative of a very broad section of transport of all kinds, both at home and overseas, as well as of those who are responsible for the conduct of the many cognate manufacturing activities and other services. Another and increasingly valuable need it serves is to enable important individuals in transport to meet, with a minimum of formality, representatives of practically all aspects of the industry and to exchange views or give information in a congenial atmosphere.

The house dinners which have become a feature of the club's activities have been developed with this object, and have achieved it successfully. Last week the principal guest was to have been the Minister of Transport, Mr. A. J. Boyd-Carpenter, but, as has occurred on several occasions recently when he had arranged to attend gatherings of transport people, his other duties had to take precedence and precluded him from appearing. There can be no question that the calls on any Minister charged with so wide a responsibility as that of transport are many, and one can but have sympathy with holders of office, part of the discharge of which necessarily calls for public appearances at numerous functions associated with the particular cause that they serve.

Sir Brian Robertson, the Chairman of the British Transport Commission, who had also agreed to attend the Transportation Club dinner last week, admirably filled the breach left by the missing Minister. He is a forthright and convincing speaker who never fails to hold the attention of his audience and who always has something worthwhile to say. On this occasion his frank exposition of some of the problems facing the British Transport Commission and the steps it was taking to meet them made a very favourable impression on his hearers. He welcomed the opportunity provided by the Club to meet a diversity of transport executives; he not only commented on the value of such a body but he promised it his support.

He made it clear that he and the British Transport Commission were satisfied that the new plan of organisation, particularly for the railways, was workable and would be administered in a way to encourage development. No doubt because of his long military experience, the Chairman laid emphasis on two essential factors in the success of any major operation whether it be military or commercial—enthusiasm of the personnel based on belief in the ultimate success of their objectives, and loyalty to the leaders grounded in confidence in their wisdom. He struck a responsive chord when he referred to the importance of maintaining and encouraging respect for tradition, and he was on equally sure ground when he declared that reverence of the past should be matched by the deeds of today and courage for the future.

Railwaymen on the whole are a well-disciplined body with a long tradition of service. There can be no doubt—and indeed Sir Brian Robertson has no doubt—that they will give of their best in the operation of the new scheme of organisation. The successful operation of the railways, as he freely recognised, depends largely on the individual effort by members of the staff, no matter how junior or exalted the position of that individual may be.

Obviously, Sir Brian Robertson could not give details of some of the plans which have yet to be announced, but sufficient is known of some of them to recognise that a courageous move is about to be made towards the modernisation and improvement of the railways in many directions, and that a new spirit of co-operation with in-

dustry is being developed. This can have only beneficial results to all parties. There are still grave problems to be faced, but the spirit of energy and enterprise which is apparent is a good augury.

We should have preferred, as we have already made clear, to have seen a rather simpler form of organisation so far as the railways are concerned. In particular, we believe that above all else the industry needs as great an assurance as possible of a long period free of interruption by political influences. It is because we fear that the creation of the new boards may provide an excuse for political interference at a later stage that we would have preferred a different system. Nevertheless, the organisation as it has now been decided, may prove more successful in practice than it appears on paper, particularly if it is able to enjoy a reasonably long period without political upheaval.

Apart from the implementation of the development plan now imminent, the greatest difficulty facing the British Transport Commission is the solution of the labour problem. In devising some means to overcome the constant unrest among the unions, Sir Brian Robertson is well aware that, because of the vast numbers involved, national as well as sectional considerations must be given full weight. The railway wages position in many ways has the aspects of a national problem.

Railway Freight Charges Scheme

THE British Transport Commission has done well to have prepared the draft of the Railway Freight Maximum Charges Scheme in a comparatively short time and to have reached the stage of consultation with important transport users. No announcement has been made of the identity of these users, but it seems probable that among them are many of those bodies, such as the Federation of British Industries and the National Union of Manufacturers, which were consulted on the form of the railway reorganisation scheme before its submission for approval to Parliament. The draft will be amended as necessary after these consultations and then submitted, as required by the Act of 1953, to the Transport Tribunal for a full inquiry at which all bodies representative of railway users and other interested parties are entitled to appear. The fact that many influential voices will have been heard before the scheme reaches the Tribunal should result in a much quicker hearing than might otherwise have been the case. In this particular instance, however, delay is not as important as it has been on some other occasions, as there is no question of increased charges being deferred until the scheme is approved, and little likelihood of increased charges in practice being involved at all.

The scheme, as the Act enjoins, confines itself solely to establishing maximum charges. Thus it is conceived on a quite different basis from former schemes, which were concerned with standard rates which would, in many cases, actually be charged. The new scheme establishes rates which are the theoretical upper limit. The rates charged are likely to be well below the maxima and will be fixed by negotiation between consignors and British Railways or by reference to the rates charged by competitors. In the event of disagreement on a rate for any particular traffic the consignor may, if no other means of transport is available, apply to the Transport Tribunal to fix an actual rate. The new scheme therefore provides the upper limit of a framework. There is a danger that the public will consider this published list of high charges—some, no doubt, higher than existing charges—to represent the normal railway tariff, but the talks now in progress, and the subsequent public hearing before the Transport Tribunal, should do much to counteract this. In any case, the commercial users of railway transport will be well aware of the true situation.

The Maximum Charges Scheme will reflect in general terms the new principles of charging to be applied to the actual commercial rates. The weight of a consignment and its loadability, the tapering of charges as distance increases, and the fact that the smallest unit of haulage costs is the wagon must all be taken into account. This is quite unlike the former charging system with its elaborate classification

of goods to enable charges to be made by value on the principle of "what the traffic will bear." No account was taken of handling costs, the differences between one route and another, one transit and another, and the casual as opposed to the regular provider of traffic. That system was based on a monopoly no longer in existence and it has been undermined by various rating devices until the traffic passing at standard rates has become a small proportion of the whole.

The new system is based on the cost of actually carrying a particular consignment or group of consignments and on "what the market will bear," the "market" in this case being the competitive transport market instead of the market for the goods. The Maximum Charges Scheme must therefore set the limit high enough to allow of the maximum flexibility below the rates laid down. The Commission has said that it will be no part of the scheme to bring about a general increase in the freight revenues. This rather ambiguous statement almost certainly means that there is no intention of charging higher rates by applying the maximum charges laid down. It is to be hoped that the new system of charging, by attracting the most suitable traffic to rail and rejecting the unsuitable, will bring about a considerable increase in the freight revenues of the Commission.

The new commercial outlook implies that the trader who wishes to send regular traffic in convenient quantities over a regularly served route will find his transport costs lower than his competitor who sends mixed consignments in random lots to remote places. This brings railway policy much nearer to that of the road haulier, who takes into account the size of vehicle he can use and its running costs, together with the possibility of a back-load from the destination. Perhaps the most interesting effect of the system will be on the trader who now carries his trunk loads in his own "C" licenced vehicles, leaving the awkward odds and ends to be dealt with by public transport—usually rail.

Danish State Railways in 1953-54

THE increase of 4½ per cent in the number of passengers carried by the Danish State Railways in the year ended March 31, 1954, occurred entirely in the Copenhagen suburban area, where 73,200,000 passengers were carried compared with 68,300,000 in the preceding year. The copy of the report which has reached us from Mr. E. D. F. Terkelsen, General Manager, shows that extension of suburban electrification to Glostrup in June, 1953, was mainly responsible for the additional traffic. Elsewhere the number of journeys was almost unchanged. Goods traffic was down by nearly four per cent. The decrease is in wagon load traffic: it was possible to maintain the less-than-wagonload traffic by giving quicker service. Traffic to and from other countries increased considerably; in particular the conveyance of road vehicles from Germany to Sweden.

Some of the results for 1953-54 and 1952-53 are compared below:—

	1952/53	1953/54
Km. open	2,867	2,873
Passengers (millions)	104.1	108.9
Goods (million tonnes)	7.01	6.74
Train km. (millions)	35.9	37.2
Operating ratio	109.5	104.3
Million kr.		
Passenger receipts	217.7	230.0
Goods receipts	148.7	160.5
Gross receipts (all services)	430.1	459.0
Working expenditure	470.8	478.9
Net deficit	40.7	19.0
Deficit after charges	81.9	66.0

From April, 1953, there was a slight increase in salaries and wages, but this was more than counterbalanced by the higher rates and fares introduced in May, 1953, so that although working expenses were up by about Kr. 8,000,000, receipts rose by Kr. 29,000,000, about half passenger and half goods traffic. The ferry services showed considerable

increases in traffic, particularly in the number of motor-cars carried over (437,000.) On the most important crossing, the Great Belt between Korsør and Nyborg, about 39 round trips were run every day on an average and 4,384,000 passengers carried. Both the Helsingør-Hälsingborg and the new Gedser-Grossenbrode ferry services also carried heavy traffic.

British Transport Commission Traffic Receipts

IN Period 12, the four weeks ended December 5, British Railways passenger receipts showed a considerable recovery, and at £7,170,000 were £349,000 more than in the corresponding period of 1953, although they were £710,000 lower than in Period 11. The aggregate increase over 1953 for the 48 weeks is now £1,444,000. The present figures support the view that the fall in passenger traffic has not been as severe as appeared from recent returns.

Merchandise and livestock receipts, although £137,000 more than in Period 11, were £10,000 less than in the corresponding period last year. Mineral traffic showed a further improvement and at £3,880,000 was £189,000 more than in the same period of 1953 and £41,000 more than in Period 11—a direct contrast with the fall of £52,000 between the same periods last year. Coal and coke traffic showed an increase on last year of £719,000 but fell by £38,000 from the Period 11 level. Receipts from parcels, etc., showed an improvement of £3,000 on Period 11 and of £221,000 on last year, and collection and delivery services receipts increased by £5,000 compared with last year.

	Four weeks to December 5		Incr. or decr.	Aggregate for 48 weeks		Incr. or decr.
	1954	1953		1954	1953	
	£000	£000	£000	£000	£000	£000
Passengers—						
British Railways ...	7,170	6,821	+ 349	107,629	106,185	+ 1,444
London Transport—						
Railways ...	1,570	1,464	+ 106	17,594	16,778	+ 816
Road Services ...	3,987	3,907	+ 80	46,859	46,085	+ 774
Provincial & Scottish buses ...	3,457	3,390	+ 67	47,245	46,412	+ 833
Ships ...	178	172	+ 6	5,443	5,230	+ 213
Total passengers ...	16,362	15,754	+ 608	224,770	220,690	+ 4,080
Freight, parcels & mails—						
British Railways—						
Merchandise & live- stock ...	9,077	9,087	— 10	102,482	100,271	+ 2,211
Minerals ...	3,880	3,691	+ 189	42,331	41,574	+ 757
Coal & coke ...	9,731	9,012	+ 719	107,233	100,214	+ 7,019
Parcels, etc., by pas- senger train ...	3,229	3,008	+ 221	37,560	35,462	+ 2,098
Total British Railways ...	25,917	24,798	+ 1,119	289,606	277,521	+ 12,085
British Railways C. & D., etc. ...	941	936	+ 5	11,210	10,794	+ 416
Others* ...	5,820	6,930	— 1,110	73,112	78,260	— 5,154
Total freight, parcels and mails ...	32,678	32,664	+ 14	373,928	366,581	+ 7,347
TOTAL ...	49,040	48,418	+ 662	598,698	587,271	+ 11,427

* Inland waterways freight, road haulage, and ships

London Transport railway receipts fell by £74,000 from Period 11, but L.T.E. road services receipts increased by £370,000. No doubt some of this re-adjustment followed the end of the bus strike in London, but the two services showed increases of £106,000 and £80,000 respectively over the receipts for the equivalent four weeks of 1953.

Provincial and Scottish buses receipts showed a seasonal fall approximating closely to that of 1953, but at £3,457,000 were £67,000 more than in the same period last year. Passenger shipping receipts were also affected by a seasonal drop and at £178,000 were £68,000 less than in Period 11. The drop last year was £67,000. Receipts exceeded those of the same four weeks of last year by £6,000. Inland waterways freight, road haulage, and shipping receipts were £1,110,000 less than in the same period of 1953, bringing the aggregate decrease from this source for the

48 weeks of the year, compared with the same period of last year, to £5,154,000.

Total receipts of the Commission for the period were £49,040,000, an increase of £622,000 on Period 12 last year. The aggregate increase on last year is now £11,427,000, and it appears that total receipts for the year may be some £12,500,000 more than in 1953.

PERCENTAGE VARIATION 1954, COMPARED WITH 1953

	Four weeks to December 5	48 weeks to December 5
British Railways—		
Passengers ...	+ 5.1	+ 1.3
Parcels ...	+ 7.3	+ 5.9
Merchandise & livestock ...	— 0.1	+ 2.2
Minerals ...	+ 5.1	+ 1.8
Coal & coke ...	+ 7.9	+ 5.9
Total ...	+ 4.6	+ 3.5
C. & D. services ...	+ 0.5	+ 3.8
Ships (passengers) ...	+ 3.4	+ 4.0
British Road Services, Inland Waterways, and Ships (cargo) ...	— 16.0	— 6.5
Road Passenger Transport, Provincial & Scottish ...	+ 1.9	+ 1.7
London Transport—		
Railways ...	+ 7.2	+ 4.8
Road Services ...	+ 2.0	+ 1.6
Total ...	+ 3.4	+ 2.5
Aggregate ...	+ 1.2	+ 1.9

The British Locomotive Manufacturing Industry

THE locomotive manufacturing industry in Great Britain has, since 1945, exported locomotives and components to the value of £100,000,000. Lt.-Colonel Kenneth Cantlie, Overseas Representative, Locomotive Manufacturers' Association, in a review of the locomotive industry in an article in the December issue of the *F.B.I. Review*, the journal of the Federation of British Industries, states that there is a continuing demand for locomotives in the export market which is temporarily limited by exchange shortages and other economic difficulties, and that the future of the industry is bright, despite subsidised foreign competition. The average rate of locomotive requirement is never a constant factor, it is also difficult to determine its life, as it varies constantly with changing interest charges on new capital, and other factors. Furthermore, in politically unstable countries, the cost of borrowing new capital is so high that it nullifies the economies resulting from additional locomotive power.

In the U.S.A., for example, he points out, low interest rates on new capital, intensive utilisation, and the mass production of standard classes have reduced the economic life of locomotives to some 25 years. Allowing for varying conditions, he considers that to keep the world's present locomotive stock at its best would require 6,000 new locomotives a year of all sizes and types, which figure has not been reached in peace time for many years past. Motive power built for new railways would add to this total were it not counterbalanced by the tendency to replace condemned locomotives by a smaller number of more powerful type. A major problem confronting the industry is to supply locomotives of quality at terms which compete with foreign competitors.

The American locomotive industry, Colonel Cantlie shows, is large and efficient, with a good publicity service; French builders have entered the locomotive export market in an increasing degree; German and Japanese industries have been reconstructed very rapidly; and competition from behind the Iron Curtain is also increasing. To establish themselves in foreign markets these competitors have been granting increasingly favourable terms to possible customers, and in several cases been aided by their respective Governments. This growth of competition may at first sight appear rather formidable, but, he states, American production since the war has been channelled largely into re-equipping its own railways, and this is likely to apply to Continental manu-

facturers, for a wholesale re-equipment of the European railways cannot long be delayed. British prices are as low as those of any unsubsidised competitor and will continue to attract a large share of the world's orders.

Another problem facing the industry is the increasing desire of foreign railways to obtain their locomotives by means of long-term credits, the first offers of which were made by foreign builders anxious to recapture old markets; and once started, the process is most difficult to halt, especially at a period when a number of countries find themselves so short of foreign exchange that they can obtain locomotives only by spreading their payment over several years. This presents few difficulties when the particular country has a good financial reputation, but instability in others provides an element of risk. Some foreign competitors are willing to take considerably greater risks than are those of this country, either through the assurance of assistance by their respective Governments, or by pressure of events. This situation, he considers, will right itself in time, for the less stable countries will be

irregular in their payments, and this will force a more cautious attitude on the part of the suppliers.

Meanwhile, the British locomotive industry intends to pursue a middle course, examining each case on its merits, and putting forward the best terms that it believes to be economically justified. The British industry exports what is, perhaps, a higher percentage of its products than any other capital goods industry, and Colonel Cantlie says there is little doubt that the industry would be assisted in its fight for foreign markets if it had a bigger home market, which we have advocated in this journal from time to time. Railways in most other countries find it more economical to purchase their requirements from outside manufacturers by competitive tender. For many years British Railways have built a large proportion of their own locomotives, and apart from industrial locomotives, British industry is wholly dependent on exports. The industry, however, is taxed on the same scale as though it had a large and stable home market, and this, it feels, is inequitable.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Railway Rates and Efficiency

December 11

SIR,—In his letter in your issue of November 12, Brigadier-General Sir H. Osborne Mance says that it goes without saying that railways should reduce their costs by increasing efficiency. This seems obvious; yet, save in very limited and restricted sense, it simply is not true. This paradox can best be illustrated by a simple analogy.

A railway is not a manufacturing industry but a trading concern marketing a service. Its economies are like those of the cinema industry in which the costs of projecting a film are a small part of the total costs; and it would never be postulated that the industry depended on a reduction in the projection costs. Yet that is what, by analogy, is involved in reducing costs on a railway. The total projection costs at one performance at a cinema are borne by the revenue from two patrons in the dearest seats.

The objective should be to obtain the greatest possible revenue by a system of differential charging in the prices of admission and giving as many performances as possible. It would be sound to increase revenue by a reduction in the price for parties, provided the elements of the original differentiations in price is maintained.

On a railway the total cost of operating a train mile is borne by the revenue from two or three tons of goods carried at the highest class rates. Any economy in costs resulting from the use, for example, of a larger engine, is covered by the revenue from no more than one ton of goods carried at a low class rate.

Similarly, the economies resulting from the employment of larger wagons are minute, for the tare weight of a wagon increases roughly in proportion to the carrying capacity. Much more revenue could be lost by trying to economise than could ever possibly be saved by a reduction in cost. Marginal costs on a railway are negligible and the scope for reduction is also therefore negligible.

Moreover, the employment of the larger engine or the larger wagon can actually result in a decline in efficiency for, if for instance a less-than-wagon-load quantity is carried in a larger, rather than in a smaller, wagon the result will be an increase in costs, as the operation would involve a larger tare-to-payload ratio. This might still hold true even if the average wagon load were increased.

Railway rates are not related to costs in any way. The prices of admission to a cinema are not related to cost. The only way of improving the prosperity of either industry is simply to attract more business. The essence of the railway business is not the locomotive, or the costs and

efficiency, but the pricing policy and the service. The first essential of the rating structure should be flexibility to meet changing market conditions.

By writing of the need for a subsidy because of the existence of non-paying traffics, Sir Osborne Mance creates the impression, perhaps not intentionally, that railways carry much traffic essential to the community at rates below cost. This also is not true and it is doubtful whether any traffic is non-paying as the result of a low rate, so small are the ton-mile costs on an average railway. The only non-paying traffics are those carried on lines where the traffic density is insufficient to meet the fixed costs.

Yours faithfully,

A. R. G. SAUNDERS,
Traffic Manager

Sierra Leone Railway, Cline Town,
Freetown, Sierra Leone

The Meon Valley Line

December 5

SIR,—The retention of the Meon Valley line, which is to be closed in February, as part of the Southern Region system should not depend only on the traffic offering locally. This line provides an alternative route from London to the Portsmouth area (Fareham and Gosport) via Alton. The only train service shown in the Southern Region timetable as between Fareham and London is via Alton. That this line has not been used as a through route by the public is due to the meagre and slow train service involving a change at Alton.

With Gosport and Fareham at the south end, and Aldershot, Farnham, and Alton as the more important intermediate stops, there should be sufficient traffic to justify a reasonably fast service from Waterloo. In the summer, relief to the Guildford-Portsmouth route should be welcome. A similar service might also run from Waterloo to Winchester via Alton, a route used in the summer for working empty stock and specials. Recently there has been a tendency to try to concentrate all traffic on the principal routes, although there are alternatives.

The layout of the Meon Valley line permits reasonably high speeds, and if the local stations do not justify a train service it might be resignalled as one long single line section between Alton and Knowle, so avoiding the speed restrictions otherwise necessary at the loops.

Yours faithfully,

R. G. R. CALVERT

45, Woodways, Oxhey, Watford

THE SCRAP HEAP

Spirit of Christmas

The refreshment staff at Euston collected among themselves some £40 to buy toys for children's hospitals in London. They also provided an iced cake, chocolates, cigarettes, and flowers for the staff of the Surgical Ward of the Temperance Hospital in Hampstead Road, Euston, and cigarettes for the members of the Red Cross first aid post in Euston Station.

Buying a Train

The motorcar which could be bought for less than £200 twenty years ago and is now retailing at £1,000 is not nearly as arresting an example of price increases as a railway train. A passenger train of 12 coaches, dining-car, van and suitable locomotive could be put on the tracks for £47,405 in 1914. The cost of the locomotive was £6,545; the twelve coaches, £35,590 (or less than £3,000 each); the dining-car, £3,300 and the van, £1,970.

By 1930, the cost of a similar train had risen to £68,900 with the locomotive at £12,000, nearly twice as expensive as in 1914. To put a similar train in service to-day costs the Railway Administration £192,770. The locomotive is now nearly £80,000; the twelve passenger coaches would cost £99,720; the dining-car £7,550 and the van £5,500.—From the *"South African Railways News."*

Nativity Scene at York Station

The accompanying illustration shows a Nativity scene in the window of the British Railways Enquiry Office at York Station. It is nearly 6 ft. long, 2 ft. high and 1½ ft. in depth, and was designed by members of the staff of the Publicity

Department of the North Eastern Region, York. The scene is attracting much interest on the part of passengers.

Travelling Hopefully

The monorail struck our grandfathers as a good idea. . . It could be run overhead, thus easing the traffic problem and giving passengers plenty of good fresh air. And the saving in materials would obviously be considerable. Alas, . . . these inventions never quite came off.

Which is, perhaps, just as well. To-day, our trains are run with a beautiful simplicity. They exist, for the most part, simply to take us from one place to another. Unlike the late 19th century, when they tried to complicate matters with their odd, laughably old-fashioned desire to travel not merely from A to B, but at speed, in comfort, and cheaply as well.—From *"Everybody's."*

Impasse

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men decay."

Why should Noll Goldsmith's half-forgotten rhyme
Stir in my sluggish brain at Christmas time?

Occasionally, when I've time to kill,
I pass the time of day with Porter Bill,
Whose salty commonsense is at my call,
When run to earth behind the Luggage Hall.

On Christmas Eve, alas old Porter Bill,
Like Scott's poetic stag, had drunk his fill;
Nevertheless, I trotted out my rhyme,
For poesy regards not place or time.

Suspicion swiftly creased his noble brow,

As he enquired what I was up to now,
And, as his weary eyes began to blink,
I heard him beg some power to strike him pink.

I said that Christmas gave mankind a chance

To rise superior to circumstance.

And re-assume essential dignity;
Bill said he'd rather have a cup of tea!

"But, surely, Christmas is the season when

We ought to think about our fellow men,"

I reasoned with him. Bill said: "I'll agree

When some of them begin to think of me."

Although just now most railwaymen feel sore,

It was not like Old Bill to be a boor;
He grinned and said: "Such fancies

may be sweet,
But, meanwhile, Guv, my shoes are full of feet."

Well, when old friends hold differing points of view

On Christmas Eve, there's just one thing to do—

We sought the sanctuary of the bar
And drowned our differences in good, hot "char."

A crumbled branch fell from the Christmas tree,

A late train slid out to the distant sea,
I bade Old Bill a seasonal "Goodnight"

And went home wondering which of us was right.

A. B.



Display, representing the Nativity, designed by the North Eastern Region, at York Station

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Quadrupling of the Durban-Booth Line

The line between Durban and Booth, five miles, is being quadrupled at an estimated cost of more than £2,000,000.

Suburban passenger traffic in Durban has increased considerably from 8,019,671 in 1935-36 to 20,572,361 in 1953-54. The present double track between Durban and Booth has consequently become inadequate. It passes through the industrial area of Durban, which results in numerous trains and engine movements across the main lines. When this section is quadrupled and train movements over the four lines increase, the present difficulties and delays will be intensified and it has, therefore, been decided to provide fly-over bridges to avoid the main line.

As a direct result of the quadrupling several buildings along the line will have to be demolished and rebuilt. Additional sidings will also be provided. Work on this project has begun and should be completed early in 1959.

EAST AFRICA

January-October Revenue

The approximate total revenue for the period January to October, 1954, was £12,528,429 (£10,386,827). Of this increase, earnings from rail goods traffic bearing the 20 per cent increase in rates that came into operation on January 1, 1954, accounted for £1,971,078. Other increases were recorded for livestock, luggage and parcels traffic as well as for traffic carried on the road and

water transport services. Passenger earnings were £37,170 less. The indications are that passenger traffic is likely to increase and this is particularly noticeable on the Tanganyika Central Line where the recent addition of new third class coaches has improved the Administration's ability to cater for third class travel.

During October, the approximate revenue from rail goods traffic amounted to £1,016,348 (£948,413 in September and £996,021 in August). On the Kenya-Uganda section, forwardings to the coast amounted to 58,863 tons, compared with 45,882 tons in October, 1953; the total of 564,592 tons for the ten months compares with 478,049 for 1953.

Traffic to Tanga in October was slightly less than in September, the tonnage for the ten months January-October being about 5,000 tons greater than in the same period of 1953. On the Central Line, October traffic to Dar es Salaam, at 15,252 tons, were the highest in any month this year and 2,500 tons greater than in October, 1953. Because of the low level of export traffic early in the year, the accumulative figure for 1954 is still some 20,000 tons less than that for the first ten months of 1953.

INDIA

Bangalore-Salem Traffic Survey

A traffic survey between Salem and Bangalore has been sanctioned by the Railway Board for determining the traffic prospects of a metre-gauge line connecting these two places some 120

miles apart. It is estimated to cost Rs. 50,000 and covers the route from Bangalore to Hosur and on to Dharmapuri, following, as far as possible, the previous narrow-gauge alignment between Hosur and Dharmapuri, and on to Salem via Oamlur, on the Salem-Mettur Dam line.

The President of the Mysore Chamber of Commerce, while welcoming the Railway Board decision, urges that the survey should be for a broad-gauge line to facilitate through traffic from Bangalore to Trichinopoly and to thus become a second feeder line for the movement of goods as well as passenger traffic.

Rail Link with Jammu

Orders are reported to have been given for extension of the railway line from Pathankot up to Lakhimpur, the first step towards linking the State of Jammu with the railway system of the Republic of India.

JAPAN

Long Concrete Span

A 96-ft. concrete span is stated to have been completed across the Ohto River, claimed to be one of the longest in the world. It was designed by Dr. Nisugi, of the Japanese National Railways, and consists of four concrete slabs, each weighing 50 tons and reinforced only with 300 piano wires. The span is reported to have registered hardly any vibration when the first train crossed it, after a long series of tests.

CANADA

New Vancouver-Nanaimo Ferry

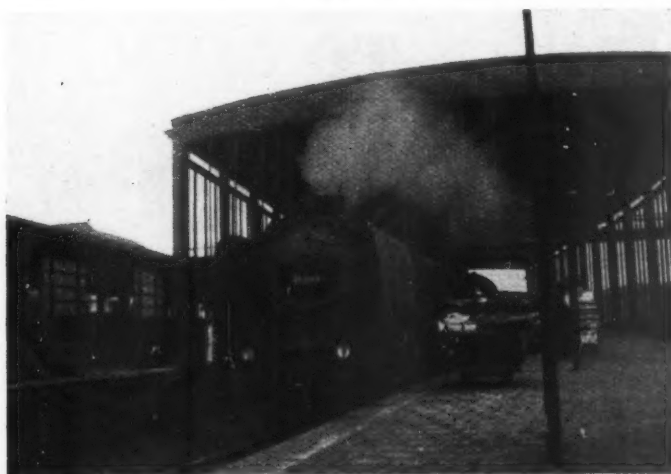
The *Princess of Vancouver*, a new ferry for the C.P.R. Vancouver-Nanaimo service, is under construction in the shipyards of Alexander Stephen & Sons, Ltd., Linthouse, Glasgow. The vessel, which should be in service in May, will be a twin-screw diesel vessel capable of carrying 800 passengers and 28 box cars or 115 motorcars, or a combination of both types of vehicle. With a service speed of 15½ knots, the vessel will be able to make three round trips a day.

BRAZIL

Rio Grande do Sul Railway

The Rio Grande do Sul system, formerly leased to the State Government, is now administered by a Board of Directors, on which the representative of the Federal Ministry of Communications holds a controlling vote. Future estimates will be approved by the Ministry of Communications and deficits will be covered by Treasury

International Passenger Train Working in Berlin



Photo]

[A. Earle Edwards

Berlin Ostbahnhof to Cologne and Hook of Holland express at Berlin Zoo Station, hauled by 4-6-2 locomotive

grants. A special credit of £4,800,000 has been authorised to meet the 1953-54 deficits.

Reorganisation Bill

The President of the Republic has asked the Chamber of Deputies for an early decision on a Bill to convert the federal railways into joint stock companies, under a co-ordinating body, as referred to in our issue of July 25, 1952. The Presidential Message points out that the problem of the federal railways, at present subject to fragmentary and inadequate legislation, urgently needs solution.

VENEZUELA

New Lines

A large-scale programme of construction of standard-gauge lines is in hand. A line to link Barquisimeto with Puerto Cabello will be extended thence to Valencia and subsequently to Caracas, the capital. It will replace an existing narrow-gauge system. The system will later be extended westwards to Maracaibo and eastwards to Barcelona.

UNITED STATES

Suburban Coach Orders

Two railways serving New York have recently placed the largest individual orders for suburban coaches that have been put out for some years past in the U.S.A. The Long Island, as part of its improvement and rehabilitation

scheme following its emergence from receivership, has ordered 125 new coaches each seating 120 passengers. The New York Transit Authority has placed a considerably larger order, at a cost of \$41,202,220, for 400 underground coaches, to be used on the Interborough Rapid Transit Division. Delivery of the first 20 is to take place in March of next year, and 30 will be delivered each month thereafter.

Southern Pacific Dome Cars

The public reaction has been so favourable to the experimental "bi-level" dome car turned out of its Sacramento Works by the Southern Pacific Railroad, that six more of these cars are to be built. It will be recalled that the experimental car was reconstructed from a previous parlour-observation car at a relatively low cost, and though it has two levels, to keep the car height within S.P. clearances generally the space under the dome is not used to provide additional lounge accommodation; also the "ground floor" buffet section has the advantage of the high domed roof 11 ft. above the floor level.

Diesel Replaces Electric on Interurban

Another small railway which has abandoned electric traction in favour of diesel-electric is the 27-mile Cedar Rapids & Iowa City. This interurban line, opened in 1904, at one time had a considerable passenger traffic, which reached its peak in 1945. Seven years later the number of passengers carried

had shrunk to less than one-third of the 1945 figure, and the railway obtained authority to substitute buses for its passenger trains.

In 1953 it was decided to introduce diesel-electric locomotives for freight operation and abandon the electric working. This has been carried out at a cost of \$335,000 for locomotives and auxiliary equipment; the overhead copper conductors have since been removed and sold. Electrically-driven units used in maintenance work have been fitted with petrol-electric sets to provide them with current. Radio communication has been installed, with transmitting stations at both termini.

SWITZERLAND

The "Tonkin Arrow"

The "Flèche du Jura" ("Jura Arrow"), an electric motor coach which for some years has worked over the lines radiating from Le Chaux-de-Fonds, in the Jura, has been replaced by one of the latest type motor trains, with a type "CFe4/4" motor coach and trailer, and additional vehicles as required, to afford additional accommodation. The displaced motor coach has been transferred to the newly-electrified St. Maurice-St. Gingolph line, at the eastern end of the Lake of Geneva, and has been renamed the "Flèche du Tonkin" ("Tonkin Arrow"). "Tonkin" is a nickname bestowed long ago on this branch because of its remoteness from the main Swiss railway network.

Publications Received

Railway Statistics. By L. V. Gopalan. Published by the author at 14, Balakrishna Road, Mylapore, Madras 4. 8½ in. × 5½ in. 138 pp. Price Rs. 3-8. —This book is an enlarged version of the author's earlier *Railway Statistics Manual* and incorporates the various changes in accountancy procedure which have taken place since that work appeared in 1949. The author lays stress, wisely, on the need for a railway statistical officer to have a thorough understanding of pure statistics and emphasises the danger of hasty conclusions after a superficial examination of statistical results. Students will find most of their wants satisfied by this volume, and it is likely to find wide acceptance as a book of reference. The detailed examination of forms and statistical returns throughout refers to the requirements of the Indian Railway Board.

A Proud Heritage. By John L. Salmon. London: The Railway Convalescent Homes, Speen House, 124a, Baker Street, W.1. 7½ in. × 5 in. 100 pp. Illustrated. Price 2s. 6d. This book tells the story of the railway convalescent homes movement, which celebrated its Golden Jubilee in 1951. The early history of the movement is one of struggle and alternating elation and disappointment. Mr. Salmon gives pride of place to John Edward Nichols, Chief

Cashier of the South Eastern & Chatham Railway, as the first man to conceive the idea of railway convalescent homes and the leading light in their founding and early development. The history is followed by a survey of the homes as they are today. There is a foreword by Sir Brian Robertson, Chairman of the British Transport Commission. The book can be obtained by post, price 2s. 9d., from the Secretary, Railway Convalescent Homes, at the address given above.

Enghien-St. Eloi.—The railway rolling stock catalogue, in French, English, Spanish, and Portuguese of the Soc. Metallurgique Enghien-St. Eloi, with works at Enghien and Manage, in Belgium, illustrates and briefly describes a wide variety of passenger coaches and freight wagons, including a trolley wagon for the Great Northern Railway of Ireland. Diesel railcars also are included.

Steel Castings.—A booklet on steel castings, produced by the North British Steel Foundry, Limited, of Bathgate, Scotland, has been designed not only to function as a catalogue, but also to provide a useful source of reference for the buyer of steel castings. It contains notes on the design of steel castings as it relates to the actual process of casting steel, a set of tables covering British Standard

specifications for steel castings in carbon, and low- and medium-alloy steels, with their U.S. equivalents, and notes on procedure to be followed in placing enquiries and orders for steel castings. Sections are devoted to each department of the steel foundry, and in the section describing steel making and melting practice, reference is made to a type of cupola stated to be new to this country. This plant, known as the MBC, is the first of its kind to be installed in a steel foundry in Great Britain.

Max Arc 300 Oil Cooled Welder.—Details of the (Max Arc 300, heavy-duty oil-cooled welder for operating on a.c. mains is given in an illustrated leaflet issued by Max Arc & Electric Limited, Walton-on-Thames. The output is 20 to 300 amps. with 85 V. for striking the arc, and is suitable for all sizes of electrodes up to four s.w.g.

Blaw Knox Earth Moving Equipment.—Earth moving equipment, concrete mixers, and special attachments for BK Super-12 and BK-12 motor graders form the subject of a series of leaflets issued by Blaw Knox Limited. Among the details included are dimensioned diagrams and illustrations of the many types of equipment, with capacities. Details of Blaw Knox Steel Forms, for forming concrete work for tunnels, dams, piers, and other civil engineering works are also included.

Atomic Power for Transport

A forecast of transportation methods and traffic offering in the U.S.A. in 1975

THROUGH the courtesy of the Bureau of Railway Economics, Association of American Railroads, we are able to summarise an address given by Mr. Richard L. Bowditch, Chairman of the Board of the United States Chamber of Commerce, to the American Society of Traffic & Transportation on October 29. Mr. Bowditch began his talk about transport in an atomic age by warning his audience of the difficulty in forecasting the future of the most dynamic of all industries, susceptible to radical changes.

He said that during the last 50 years two new modes of transport, the motor vehicle and the aeroplane, had become indispensable parts of the transport system, while oil pipelines and barge fleets on inland waterways were the fastest growing carriers in the U.S.A. for bulk freight. In the second half of this century new forms of transport, such as huge belt conveyors for moving coal or ore, might be developed at any time. The year 1975 appeared to be the date when industry should benefit from the use of nuclear energy, though problems like the provision of light-weight shielding to stop dangerous radiation would have to be solved first.

Atomic Locomotives

By 1975 all the American Navy's capital ships and large vessels of the mercantile marine would be atomic propelled. A number of powerful atomic locomotives would be pulling heavy railway trains, but atomic engines for road vehicles and aeroplanes were not likely to be ready for general use.

If the national economy were to expand at the rate expected, twice as much energy would be required in 1975 as the United States used now—30 per cent of it for transport. Official esti-

mates showed that the additional energy could be furnished by coal, gas, oil, and electricity, but the Atomic Energy Commission had indicated the almost unlimited possibilities of atomic energy. The energy content of one pound of uranium, costing \$20, equalled that of 1,500 tons of coal, costing \$12,000. The potential savings would offset the high investment needed to produce the atomic energy. Ample material resources were reported to be available.

Standard of Living

In 1975 the population of the United States will be 200,000,000, of whom 90,000,000 will be employed. The total amount of goods and services obtainable will be double the present quantity. The standard of living will be 100 per cent higher, largely because of the use of automatic machines which will raise output and reduce manufacturing costs. Twenty years on, distance will be a minor factor in the choice of living quarters.

Inter-city travel in 1975 will be more than 50 per cent greater than in 1954. Airlines will treble their passenger miles, with the helicopter making the most radical change in travel. Railways and bus services may increase carryings by a third, but the motor car will be the main mover of people. In the next 20 years \$100,000 million will be spent on modernising motor highways, roads, and city streets. The 40,000 mile inter-state highway system will be rebuilt and will include 10,000 miles of toll roads.

In framing optimistic prospects for freight carriers, Mr. Bowditch relied on forecasts made by the President's Materials Policy Commission. The average inhabitant of the U.S.A. now uses 18 tons of materials in a year and

in 1975 will, it is thought, consume 25 tons. As each ton will move an average distance of 400 miles, the ton mile volume of freight will pass the 2,000,000 million mark, or almost double the present volume. Railways will remain the largest carrier, but will lose relatively on total volume, handling about 40 per cent, or 800,000 million ton miles against 605,792 million in 1953. Motor hauliers will thrive on the improved highways and deal with 600,000 million ton miles, or 30 per cent of the total. Railways and motor carriers are expected to work together in future to mutual advantage, with joint use of rail and road facilities—specially designed motor trailers being hauled by the thousand on railway flat wagons. Pipelines and waterways will share the bulk of the remaining freight about equally, leaving one per cent to airlines.

Use of Electronics

Mr. Bowditch is of opinion that the most striking change in railway methods by 1975 will be the use of television, radar, and other electronic devices. All major sections of line will be under centralised traffic control and shunting operations will be almost automatic. With improved track and rolling stock, freight train speed will pick up and the average speed of passenger "streamliners" will exceed 100 m.p.h. The public must realise that such improvements in transport cannot be expected unless money is available. Rates and fares of carriers should be at sufficiently high levels to include this necessary expenditure. The major objectives of tomorrow's rate regulation should be to create fair competitive conditions among the various types of carriers and to maintain a strong common carrier transport system.

HEAVY-DUTY PLUGS AND SOCKETS.—A range of heavy-duty plugs and sockets for joining electric cables which will withstand rough handling without damage has been evolved by the Plessey Co. Ltd., Ilford. There are four basic housings made of forged aluminium bronze for plugs and sockets, a cable unit, for terminating and anchoring cables; a panel unit, fitted with a flange for mounting in a fixed position, wiring connections being made directly into the rear; a cable coupler, to be used in conjunction with a cable unit when it is desired to join two cables; and a panel mounting coupler, which is similar to a panel unit except that an outlet and fittings are provided to enable a cable to be connected at the rear. The housings are arranged to accommodate either a plug or socket fitting, which are interchangeable. When mated the plug and socket are held together firmly by means of a strong connector nut cast with heavy ribs for easy handling. The connector nut is held in position by means of a collar attached to

the cable entry fittings. This collar has a left hand thread to prevent it from turning when the connector nut is unscrewed to break the circuit. Coarse threads of the self-cleaning type are used to prevent difficulties arising from dirt and mud when the plugs and sockets are used out of doors. They are completely weatherproof. Positive contact pressure ensures good electrical continuity.

INTERNATIONAL CHAMBER OF COMMERCE: TAXATION OF DISTRIBUTION.—At a recent meeting in Paris of the Commission on Distribution of the International Chamber of Commerce, the delegates expressed the unanimous view that Governments should re-examine the levels of taxation imposed on distribution and consider whether the present incidence of taxes at various stages is economically sound. Such taxation, it was urged, should be examined not only from the viewpoint of revenue collection, but to ensure that it affected national standards of living to the least extent. The

meeting, which was attended by 56 delegates from 14 countries and representatives of 11 international organisations, strongly condemned excessive regulations which distorted the economic pattern of trade. The commission decided to publish an illustrated booklet showing services rendered to the community by distribution, as it feels that the essential function of distribution is frequently misunderstood or ignored by the consumer.

IRON AND STEEL PRODUCTION.—Steel production in November reached a new high level, averaging 377,000 tons a week. This compares with the previous highest level of 374,500 tons a week in both May and October this year. The equivalent annual rate of production is 19,606,000 tons, which is 728,000 tons better than in November last year. Pig iron production averaged 235,300 tons a week. This figure was also higher than in any previous month and compares with an average of 228,500 tons in November, 1953.

Technical Progress in French Railways Electrification

Priority given to the 50-cycle single-phase system in new schemes of conversion

(By a correspondent)

IN the two years since the Paris-Lyons electrification was completed there have been many developments in traction practice and policy on the French National Railways, both in 1,500V. d.c. equipment and in a.c. electrification at 50 cycles. On the d.c. side the conversion from Lyons to Culoz, completed towards the end of 1953, has been notable in the use of single-anode rectifiers at substations, and the advantages of smaller buildings and easier handling of equipment experienced on this section may well influence the planning of future d.c. installations.

More experience has been gained of the performance of the four prototype high-speed Bo-Bo locomotives, the last of which entered service this year, and this is valuable in view of the widespread interest now being shown in the capacity of four-axle designs for work generally entrusted to Co-Co types.

Uniform Control Equipment

Descriptions of the new Bo-Bo locomotives appeared in *The Railway Gazette* of September 4 and December 25, 1953. A feature common to the French and Swiss designs is an electrically-driven camshaft control system, and the adoption of the same form of master controller and driver's desk layout in both types. These characteristics, suitably modified for the different service involved, are also seen in the new multiple-unit sets described in *The Railway Gazette* of October 1.

In the locomotives the driver notches up by hand by a to-and-fro movement of the controller, although there are positions on the faceplate for continuous rotation of the camshaft forwards or backwards. In these circumstances the action is not controlled by a normal accelerating relay, so that the rapid-notching positions are not used for starting, but for notching back and restoring power while running.

The motor coach controllers permit step-by-step notching up to full series, making 10 resistance steps available for short periods. This is a somewhat liberal provision compared with the single shunting notch usual in British practice, and is matched in this respect by the five economical running speeds which can be selected in the sequence of automatic acceleration on these equipments. No serious difficulty is seen in adapting the locomotive equipments for automatic acceleration, and the hand-notching facility has been retained largely because drivers are accustomed to this procedure. Provision has been made in the four locomotive prototypes for trial installation of an accelerating relay, with means of adjust-

ing its setting for different duties. The successful operation in Belgium of locomotives with variable automatic acceleration is being examined with interest in France and it would not be surprising to find this facility included in future designs.

In the new motor coaches the relay setting is adjusted automatically according to load by a bias tapped off a variable potentiometer operated by the self-compensating brake rigging. A corresponding arrangement under the driver's control is contemplated for the locomotives.

Operation of New Locomotives

The second of the French-built Bo-Bo prototypes (see *The Railway Gazette* of September 24) differs from its predecessor in being equipped with Schneider-Westinghouse uncompensated motors, which operate nevertheless with a minimum field of 40 per cent. In both locomotives there are five weak-field notches, permitting a very close control of speed. By courtesy of Monsieur Pierre Patin, of the Rolling Stock & Motive Power Division, South Eastern Region, French National Railways, the writer was recently able to accompany Bo-Bo No. 9003 on a run from Paris to Dijon with the "Mistral" express. This locomotive has Oerlikon compensated motors which operate at 30 per cent field on the fifth notch, but the driver had no need to go beyond notch 4 (37 per cent), and used that only briefly on two occasions. In general, once outside the 75 m.p.h. limit in the Paris suburban area, the permitted maximum speed of 87 m.p.h. was held accurately with this 577-ton train by manipulation of the field-control lever between its first three notches, or without going below 46 per cent excitation.

Power in Reserve

The "Mistral" booking of 77.1 m.p.h. to Dijon necessitates continuous running at maximum speed from the Paris suburbs to the foot of the Burgundy hills. Many reproductions of Flaman records have shown how consistently this speed is maintained by all current types of French main-line electric locomotives with varying weights of train over this section, giving proof of the value on such tightly-timed duties of the flexible running characteristics which have been a feature of all designs.

When no serious delays have been experienced up to Les Laumes-Alésia, the climb to Blaisy-Bas can be taken easily (by S.N.C.F. standards). On the writer's journey the driver gradually notched back from weak-field 3 to full-field

driving the first five miles of the ascent, while current fell from 400A to 200A and speed was held steadily between 86 and 85 m.p.h. Remaining in full-field to the summit, speed dropped further to 62.5 m.p.h. without the current exceeding 350A. This corresponds to a tractive effort of about seven tons, and as the locomotive will exert 10 tons in weak-field 5 at 87 m.p.h., taking the normal maximum motor current during running of 700A, the reserves available for time recovery even on adverse gradients are evident. On one occasion Bo-Bo 9004 averaged 79.5 m.p.h. from Lyons to Paris with 825 tons, regaining 55 minutes lost time.

The smooth riding of the locomotive at sustained high speeds was a tribute to the special design of bogie and suspension which has been developed for these French-built prototypes. It is seen already in modified form in the Bo-Bo locomotives for the Valenciennes-Thionville 50-cycle electrification, and is likely to be reproduced in the high-speed 50-cycle locomotives that will be called for by the latest authorised extensions to this scheme.

On February 22 last, Co-Co 7121 set up the world rail speed record of 243 km. (151 m.) p.h. on a test run, in the course of trials undertaken to examine the possibility of raising the present general limit of 140 km.p.h. While this performance has justly added credit to the already distinguished record of the Alstom "7100" class, the data it provided will be equally useful to the development of 50-cycle motive power to 1,500V. d.c.

Annecey Line 50-cycle Prototypes

The most recent addition to the prototype vehicles operating on the 50-cycle electrification through Annecey has been a motor coach equipped with Brown-Boveri control apparatus and a.c. motors, which began running in the summer of 1953. In designing the traction motors the characteristics of machines with a long record of successful service on 16 $\frac{2}{3}$ -cycle equipment have been reproduced as far as possible, although the diameter is slightly greater because of the increased number of poles. It was considered, however, that a 12-pole motor was preferable to one of smaller dimensions with a more complicated armature winding. The machines incorporate the Brown-Boveri flexible disc drive, which has proved particularly advantageous in connection with motors having a relatively large number of brushes, because of reduced vibration.

Each motor has a continuous rating of 380 h.p., 1,620 A., at 1,345 r.p.m.;

or 415 h.p., 1,800A., at 1,260 r.p.m. at the one-hour rate. Both ratings are at 230V., the motors being operated two in series. Acceleration is automatic, under the control of a notching relay and contactors operating on the secondary side of the transformer, but arrangements are made so that the current does not greatly exceed 1,000A. until a speed of approximately 4 m.p.h. is reached, so that shunting of the main field to minimise transformer voltage is unnecessary. From 9 to 43 m.p.h. the average accelerating current ranges around 1,800A.

The motor coach operates in conjunction with a driving trailer. Forced ventilation is provided for the traction motors by blower sets mounted on the end platforms. Like the coach with Oerlikon equipment and the ignitron rectifier coach on the Annecy line, this vehicle has been adapted from existing S.N.C.F. direct current rolling stock.

At the end of 1953 the Annecy line voltage was raised from 20 to 25kV., and in the current year the electrification was extended from La Roche-sur-Foron to Annemasse. It will also be continued eastward from La Roche to St. Gervais le Fayet, and to provide additional motive power for working services over the extended 50-cycle system in the Savoy the S.N.C.F. has ordered four more Co-Co locomotives similar to the existing Oerlikon-S.L.M. prototype. The mechanical parts will be built by Batignolles-Châtillon under licence, but S.L.M. will manufacture the flexible drives. Provision will be made again for running on 1,500V. d.c., which is necessary in Aix-les-Bains Station and for proceeding to and from the depot at Chambéry.

Two extensions to the Valenciennes-Thionville 50-cycle electrification were authorised in 1954, details being given

in the issues of *The Railway Gazette* for March 19 and October 29. This programme will involve working fast passenger trains over the Sarrebourg-Réding-Strasbourg-Basle section, and new motive power will therefore include 20 Bo-Bo locomotives designed for a top speed of 74.5 m.p.h. This class is likely to be similar mechanically to the Bo-Bo already running on the recently-opened Valenciennes-Charleville section, but with the addition of certain details in the suspension which have proved their value in the high-speed d.c. Bo-Bo locomotives mentioned earlier.

It is proposed eventually to connect the N.E. France network with Paris by 50-cycle electrification from Lille and from Sarrebourg (see map in *The Railway Gazette* of October 29), and recent official statements have indicated that these schemes may take precedence over extending the 1,500V. d.c. electrification from Lyons to Marseilles.

Early in 1955 it is hoped that the three designs of 50-cycle locomotives at present operating between Valenciennes and Charleville will be joined by the first of 20 Co-Co with single-phase/three-phase conversion equipment.

Boundaries between Systems

The foregoing lines in N.E. France are remote from existing 1,500V. d.c. routes, but the recently announced Dijon-Vallorbe electrification (see *The Railway Gazette* of October 29) connects directly with the Paris-Lyons main line and exchanges important traffic with it. In spite of this the plans announced so far do not provide even for limited interrunning of locomotives, and at Dôle (chosen as the 1,500V. d.c./25kV. a.c. frontier because more convenient for changing locomotives than Dijon) diesel units will be used for moving locomotives over tracks not

equipped with their own system of electrification. Evidently no inconvenience is expected from this arrangement, and its adoption does not imply that the dual-system locomotive has been abandoned, for the new Co-Co for the Annecy line already mentioned will be equipped in this way. It is possible that the future existence of yet a third system in this area—the Swiss low-frequency a.c. between Pontarlier and Les Verrières—has led to the decision not to embark on equipment which would meet the system-frontier problem only at one of two points where it has to be faced.

The dual-system question recalls that one of the prototypes planned for the original Annecy line experiments has not yet appeared. This was the Bo-Bo with motor generator equipment designed to give equal efficiency on 1,500V. d.c. or 25kV., single-phase, 50-cycle a.c. Operating experience with a locomotive of this type would be welcomed in other countries with an actual or potential dual-system problem, and may in time become of more immediate importance in France.

The French National Railways have stated in connection with a question at the recent International Railway Congress in London that the expense of converting its present d.c. system into a.c. at 50 cycles would be greater than the saving to be realised by the new form of traction. More recently the French Premier, Monsieur Mendès-France, has said that the latest 50-cycle techniques enable the cost of electrification to be cut by half, and that in this way new possibilities have been opened up for the whole of the French railway system. The future course of railway electrification in France is therefore likely to present its own problems of co-existence.

EXTENSION OF AUTOMATIC SIGNALLING ON NETHERLANDS RAILWAYS ELECTRIFIED LINES.—On November 28, automatic colour-light signalling was brought into operation between Nieuwersluis and Maarssen; and when the adjoining section between the latter station and Utrecht is equipped the whole line between Amsterdam and Utrecht will be automatically signalled. A programme of some 745 miles remains to be completed under a plan whereby, by 1963, all electrified routes will have colour-light signalling, but for the moment is awaiting certain developments. It does not as yet include any cab signalling or automatic train control; but it is possible that a wish for some such apparatus will make itself felt. In order not to have to make considerable changes in the track circuit arrangements in that eventuality, the question is being studied whether it would not be better and more economical to adopt now the coded track circuit system which in itself offers certain advantages in any case. Some other questions also remain to be resolved before a large-scale application of the programme is taken up. When a decision is reached it is intended to install some 90-100 miles of automatic signalling annually. A good many stations will re-

quire to have modern power signalling installed and level crossing protection also calls for extension, as the number of level crossings on the Netherlands Railways is very large, and constitutes a serious problem.

COPGROVE STATION TO BECOME FREIGHT SIDING.—British Railways, North Eastern Region announce that from January 3 Copgrove Station, on the Knaresborough to Pilmoor line, will be converted to a public freight siding. Parcels traffic will be concentrated at Boroughbridge, from which point a motor C. & D. service operates. "Smalls" freight traffic and through loads requiring cartage will be dealt with at Boroughbridge, and through loads not requiring cartage at the public freight siding. Livestock traffic in through vehicles can be dealt with at Copgrove by previous arrangement with the station-master at Boroughbridge.

PHILIPS ELECTRICAL LIMITED SALES CONFERENCE.—In a speech to a sales conference organised by the Industrial Division of Philips Electrical Limited in London recently, Mr. G. Hofman, Managing Director, said that there was a call from all sides for more machinery to meet the needs of this

industrialised age. Opportunities for those who sold such equipment were greater than they had ever been. The man who sold consumer products needed 95 per cent sales ability and 5 per cent technical knowledge, but on the industrial side these percentages were reversed. Mr. S. G. de Lange, Commercial Manager of the Industrial Division, spoke of the results achieved by the company's film "A New Approach to Production Improvement." The scope of the Industrial Applications Centre at Brixton would shortly be extended, he said, to cover more scientific and industrial equipment.

EXTENSION OF ELECTRIFICATION IN WESTERN GERMANY.—An official announcement states that the German Federal Railway is planning electrification of the following sections in the next 10 years, at a total estimated cost of £95,000,000: Hamm-Cologne-Remagen; Hagen-Siegen; Mainz-Remagen; Frankfurt-Mainz; Frankfurt-Mannheim; Mannheim - Heidelberg; Darmstadt-Wiesbaden; Basle-Karlsruhe; Nuremberg-Aschaffenburg; and Aschaffenburg-Offenbach. Work will be carried out, it is understood, on the several sections in the order named.

Measures to Prevent Conductor Rail Icing

Sleet locomotives converted by London Transport to semi-automatic operation



London Transport electric sleet locomotive. The de-icing equipment is fitted to the two centre bogies

FOR the past fourteen winters, London Transport has regularly used electric sleet locomotives to help counter the effects of ice and snow on conductor rails on its open sections of railway.

Utilisation of such locomotives, with their additional bogies carrying ice-cutters, wire brushes, and anti-freeze sprays, is in the nature of cure rather than prevention, and postwar research has therefore concentrated on the latter, resulting in the introduction of de-icing baths built into the conductor rails themselves, whereby anti-freeze fluid is automatically spread along the rails by the collector shoes of passing trains.

The two above-mentioned devices must be regarded as complementary if an effective spread of solution is to be maintained during non-traffic hours, and also in instances where the train service interval is protracted.

Semi-automatic De-icing

Semi-automatic de-icing has been achieved by converting their de-icing equipment from manual to semi-automatic operation, with the result that it is no longer necessary for each locomotive to have an operator working the valves which control supplies of de-icing fluid to the positive conductor rail as its location changes from one side of the track to the other. Automatic operation is achieved by the use of compressed-air, controlled by electro-pneumatic valves.

Control current is supplied from two 50-V. batteries, charged from the 600-V. traction supply, and the air supply from the main reservoir line is fed through a 30 p.s.i. reducing valve to

the various operating valves. A switch-panel, located above the driver's look-out windows at each end of the locomotive, contains a rotary master switch; this not only cuts in the battery supply to the switches which control the brush and cutter equipment, but also governs the supply of current to the spray-actuating valves. Brush and cutter equipment comprises electro-pneumatic valves supplying compressed-air to operating cylinders which lower the sleet brushes and ice-cutting rollers to rail level when required.

Spraying Equipment

The spraying equipment is actuated by three electro-pneumatic valves—two for the positive and one for the nega-

tive rail—which, by allowing air to pass into cylinders, open valves in the de-icing fluid pipe-lines.

Pneumatic Interlock

Gaps in the positive rail, and its change of location from one side of the track to the other, are automatically detected by shoe-operated switches mounted on the positive shoe-beams on each side of the locomotive. When a shoe drops below rail level, its attached strap pulls open a contact to de-energise the spray-actuating valve on that side.

A pneumatic interlock fitted in the braking system interrupts the flow of fluid when the locomotive is standing with its brakes on.

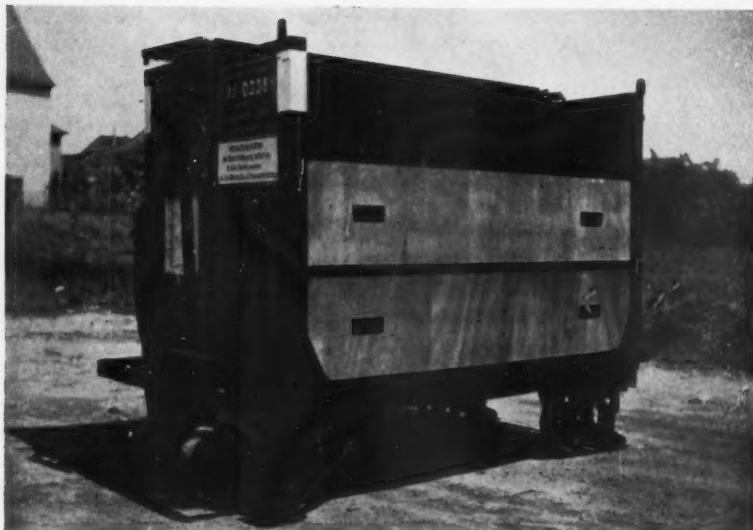
G.E.C. MAGNETIC SORTING BRIDGE—A G.E.C. magnetic sorting bridge, manufactured by Salford Electrical Instruments Limited, was displayed at the recent Birmingham exhibition organised by the Scientific Instrument Manufacturers' Association. The sorting bridge facilitates non-destructive testing of ferrous materials. The sample under test and a known standard component are both subjected to a varying magnetising force, and the instrument is arranged so that any difference between the resulting hysteresis effects obtained from the two samples is displayed on a cathode ray tube. Since the hysteresis effect is linked directly with the chemical composition, hardness and other characteristics of a ferrous sample, the procedure enables components to be tested against a known standard. If the component under test is identical with the test piece, a straight line appears on the cathode ray tube, any difference causes the trace to deviate from this, and is immediately apparent.



Centre bogies, showing the spray, cutter, and brush equipment

Small Containers on European Railways

Advantages of wagon load conveyance for small consignments



German Federal Railway wheeled container of 1 cu. m. capacity with feet down in the anchored position

ONE of the most effective methods employed by railways in Europe to meet road competition for freight traffic has been the development of door-to-door transit by means of the container. Containers can be divided broadly into two categories, a large type capable of taking a load of up to five or seven tons, and a small type with a capacity of 1-3 cu. m. (35-106 cu. ft.) and suitable for a load of approximately one ton in weight. These latter are usually fitted with wheels for easy manoeuvrability, or occasionally they may be collapsible to facilitate empty movement.

In Great Britain, development has been predominantly of the large type of container. At the beginning of 1953 more than 25,500 containers, with an average tonnage capacity of 3-4, were owned by British Railways. These containers were of various types designed for particular categories of traffic, including some 1,600 for the conveyance of furniture, 4,000 ventilated and insulated for the transport of meat and nearly 700 highly insulated for frozen meat and commodities requiring very low temperatures.

Although approximately 4,800 general utility containers and 4,000 open containers for the conveyance of tiles, and so on, were classified as "small" by the British Railways, they do not come into the category "small" referred to earlier, and as this term is generally used by the railways of continental Europe; they have average tonnage capacities of 2-9 and 2-2 respectively.

In continental Europe, however, a greater comparative use is made of the "small" category container. In Ger-

many, for example, there were, at the end of 1953, some 42,000 containers of one, two, and three cubic metre capacity, owned by the German Federal Railway. The use of the large type container is growing in importance; at the beginning of 1949 there were only about 70 large containers in operation, but orders placed in 1950-51 increased the stock to 2,500 by the end of 1952.

The Italian State Railways now own approximately 1,250 containers, of which 1,070 are of the small type, with a capacity of one cubic metre and capable of carrying a load of up to one

ton. These containers are of all-metal construction and were mostly built during the years 1930-34, the A-11 type of container, however, of which there are 150 in use, is of recent construction, having been put into service during the early months of 1953. There has been little commercial demand in Italy for the large type container.

The Belgian National Railways have in service nearly 2,000 containers with a capacity of less than 3 cu. m., the maximum load of which varies from 18 cwt. to 24 cwt. Increasing demand is in evidence for large containers, the number available being some 400.

Privately-owned Containers

At the end of 1953 the Swiss Federal Railways (C.F.F.) owned approximately 750 small containers of 1-2 cu. m. capacity and there were in Switzerland approximately 2,000 privately-owned small containers, registered with the C.F.F., and permitted to circulate over that administration's entire system and over the Swiss private railways. Large containers in operation number approximately 300, of which about 200 are railway owned.

In France, the use of both small and large containers has been widely encouraged. Small containers, with a capacity of 1-3 cu. m. and capable of taking a load of 22-24 cwt., owned by the French National Railways, number some 8,700, of which nearly 2,000 are on hire to private traders; in addition, a further 8,200 privately-owned small containers have been accepted as suitable to pass by rail. At the beginning of 1951 over 16,000 large containers were being used for rail conveyance in



Netherlands Railways wheeled container of 1.5 cu. m. capacity

France. The majority of the large containers were not owned by the railways.

In the Netherlands large containers are of more importance than the small type. Of the total of 3,280 containers in use there in 1951, over 2,400 were of the large type and the balance the small type. Four hundred of these latter were collapsible and privately owned, but nearly all the others, both large and small, were owned by the Netherlands Railways. It must be remembered that Holland was the birthplace of the D.A.F. loading and unloading device which enables large containers to be handled to and from railway wagons without the use of cranes; this device is also in use in Germany, Switzerland, and Belgium. These four countries, with Great Britain, have seen the greatest development of large containers.

Small containers are used to a limited extent on most other European railways, but the only important countries in this respect are Austria and Denmark.

to have both front and rear axles of approximately the same length.

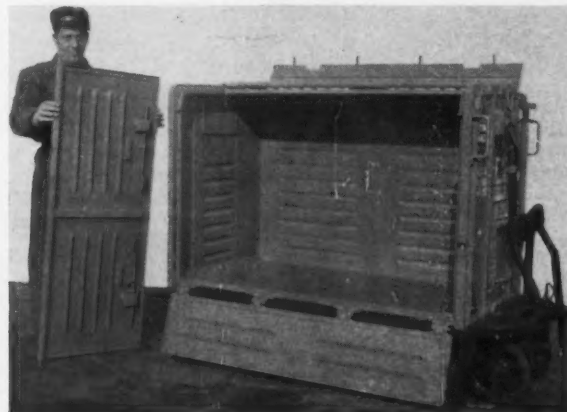
In every country the containers are fitted at the front with a locking device consisting of a pair of stilts with serrated feet. These stilts are raised when the container is being moved, but they can be let down when it is desired to anchor the container in one position. They then take the weight of the container, the front wheels being raised clear of the ground. The serrated feet ensure a firm grip on the ground.

Materials used in the construction of the containers vary from country to country. Thus in France wooden bodies with a metal framework predominate and this is also so in Germany, Austria, Switzerland, Denmark and, to some extent, in Belgium. In Italy, the Netherlands and, in some cases, in Belgium, the containers have metal bodies.

In the case of railway-owned containers, each railway has to a considerable degree specialised on a standard

containers capable of taking a load of up to 4½ tons, designed primarily for shipping traffic to North Africa, but these have not given great satisfaction. The hinges have been found particularly liable to damage, and maintenance costs have been heavy.

Of the small collapsible containers, the best known and most satisfactory type in Europe is that patented under the trade name "Collico." The "Collico" container, which is particularly prevalent in Germany and the Netherlands, is constructed of 1 mm. (0.04 in.) steel sheet reinforced at the edges and corners, and fitted with a handle at each end to facilitate handling. There are two principal types in use with internal dimensions of 11.4 × 11.8 × 24.8, and 15.35 × 15.75 × 32.9 in., respectively. Their capacities are 1.94 cu. ft. and 4.59 cu. ft., and their tares 22 lb. and 35 lb., whilst they can each carry a load of 880 lb. The "Collico" container is also being produced in a light alloy.



(Left) Type A-11 wheeled container of Italian State Railways closed and with feet raised in the running position; (right) similar container in the anchored position with side dismantled

In 1951, the Austrian Federal Railways possessed about 1,400 and the Danish State Railways about 900; in Denmark there was also a large number of privately-owned small containers.

Uniformity of Design

In studying the designs of the many varied types of small containers in use in Europe, certain similarities become apparent and there is evidence of general adherence to U.I.C. standards. Leaving out of consideration, for the moment, the collapsible type of container used largely in the Netherlands and Germany, we find that it is the general practice to fit wheels to the containers. At the rear is a pair of wheels mounted on a fixed axle, whilst the front wheels are of the swivelling castor type. The wheels are generally an integral part of the apparatus and cannot be detached. In most cases the front wheels are mounted on a considerably smaller axle than the rear wheels, and are thus comparatively close together at the front of the container. In Switzerland, however, it is more usual

design of chassis even though several types of body varying according to size and other factors may be in use. These standard designs of chassis are generally in accordance with international regulations. The dimensions of the containers vary from country to country. In general, it can be said that the interior length varies from 1.3-1.9 m. (4 ft. 3 in.-6 ft. 3 in.), the interior width from 0.8-1.1 m. (2 ft. 7 in.-3 ft. 7 in.) and the interior height from 0.9-1.4 m. 3 ft.-4 ft. 7 in.). As already mentioned, capacity varies from 1.3 cu. m. Most uniformity seems to exist in connection with the width, a large number of railways finding that the width of a normal covered wagon permits of three containers being loaded side by side across the wagon. It would appear, however, that this ease of stowage is more fortuitous than by design.

Mention was made earlier in this article of the use of collapsible containers on some European railways. Such containers are usually quite small, having a load capacity of approximately 8 cwt. In France there are collapsible

These containers are not railway owned but are hired out by the Collico Company or its agents to traders for specific periods. An intricate system of control has been devised by the Collico Company and the railways concerned. Folding or assembling can be carried out in half a minute.

Charging Arrangements

In an effort to encourage the use of the small wheeled container, certain of the European railway administrations have offered special facilities with regard to rates. It is the general practice to raise charges only on the net weight of the contents, no conveyance charge being made for the container itself. Where the container is railway-owned it is the usual practice to make a small hire charge in addition. The German Federal Railway has laid down minimum weights of contents on which charges are raised. Empty conveyance of railway-owned containers is, in general, the responsibility of the railway concerned, but a charge, which is usually based on a specially low scale,

is normally made for the return empty of privately-owned containers. In Switzerland, privately-owned containers are moved free provided the empty conveyance either precedes or follows a loaded journey of equivalent length.

The charging concession for small wheeled containers is not applicable to "Collico" and other small collapsible containers. In these cases charges are normally raised on the gross weight and an appropriate charge made for empty conveyance.

Type of Ownership

The foregoing data show a general appreciation of the virtues of the small wheeled container among the principal railways of continental Europe, although the detailed application of the

policy varies to some extent from country to country. In Germany, for example, small containers operating over the railways are almost entirely railway owned and this is true also in the case of Italy; in the latter case, however, these containers, while owned by the State Railways, are mostly on permanent hire to private firms. In Spain there are virtually no railway-owned containers, but some 400 small and 600 large containers belonging to private firms operate over the R.E.N.F.E. network. In most other countries both railway-owned and privately-owned containers are to be found. Railway ownership is thought to facilitate the best economic use of containers, whilst private ownership enables them to be best adapted to the requirements of

the individual traders and users concerned. Although small containers of capacities up to 3 cu. m. are found, preference has been given to those with capacities of 1-2 cu. m. The 3 cu. m. type has been found difficult to handle at transhipment centres.

These small containers cover a need very similar to that served by palletisation. The container design, however, enables commodities to be carried which would not be suitable for palletisation, whilst the fitting of wheels enables them to be handled without the use of fork-lift and hand pallet trucks. The recent simultaneous development in some countries, such as Switzerland and Germany, of both pallets and small containers shows that there is a field of influence for each.

Chevron System of Fabrication

Slotted angle bars for erecting conveyors, storage racks, and similar structures

A SIMPLE system of fabrication suitable for storage racks, stillages, conveyors, and other structures, has been developed by Chevron Constructional Units Limited, of London, S.W.1. Known as the Chevron system, it consists of slotted angle bars, the pattern of the slots being based on a geometrical arrangement, and their use by unskilled labour is restricted only by the necessity of accurate cutting at predetermined points to ensure matching of the slots for bolting together.

There are no blind spots, and a bolting position is always available irrespective of the type of structure required. A

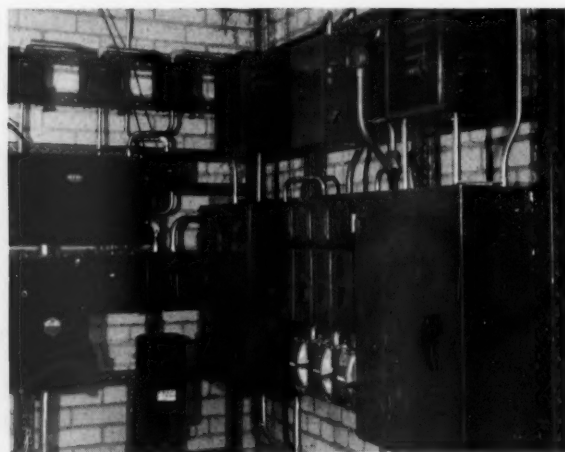
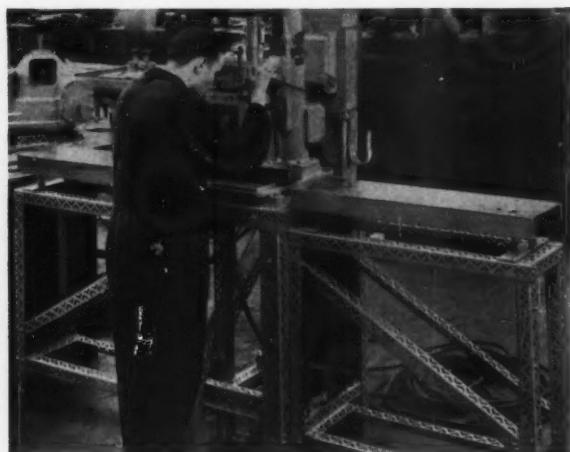
hand shear is provided for cutting the angle bars.

A feature of the design is infinite adjustability which applies to both flanges, enabling structures to be erected with precision. The angle bars may also be assembled at any angle, the slope of gravity, if required for conveyors, is easily adjusted. Odd lengths or off-cuts can be joined to form bars, or for use as angle brackets or fishplates.

The apex of the slot enables oversized bolts ($\frac{1}{2}$ in. dia.), or spindles, to be inserted at every inch, a feature of importance where components require to be accurately located. Chevron bars

are calibrated at one foot spacing, and the distance between corresponding points of the slots is one inch. Special Chevron bolts have a projection under the head to prevent the bolt from turning, the position being indicated on the head of the bolts.

The angle bars are rust-proofed and are available in two sizes, 2 in. \times 2 in. and 3 in. \times 2 in. Standard shelves having a slot in each corner are provided, enabling the units to be bolted to the vertical bars at any height required. A range of applications can be seen at the Company's office, examples of which are shown in the illustrations.



The Chevron system showing, (left) auxiliary support tables for a drilling machine, and (right) frame for switchgear assembly

TRANSPORT TRIBUNAL SITTINGS.—The Court of the Transport Tribunal has given notice that it will sit on January 25, April 26, July 19, and October 25, 1955, to hear applications for consent to, or the grant of, new or reduced exceptional rates. The

Court will also consider at those times applications dealing with changes to the railway classification of merchandise or the classification of unclassified articles, and applications dealing with reductions to be made from standard charges where

damageable merchandise is carried under owner's risk conditions. Copies of notes on the procedure to be followed in applications can be obtained from the office of the Tribunal at Watergate House, 15, York Buildings, Adelphi, London, W.C.2.

Weedkilling Train and Portable Equipment

Converted locomotive tenders and spraying apparatus used in the Western Region



Train marshalled in usual order: three tenders equipped for spraying; tank wagon of weedkiller; operators' living van; and brakevan

AN article by a correspondent in our December 10 issue discussed the problem of keeping down weeds and grass on railway premises, and mention was made of chemical sprays applied by various types of spraying machinery including, on British Railways, trains specially equipped. We are indebted to Mr. M. G. R. Smith, Civil Engineer, British Railways, Western Region, for the following details of the special spraying train and equipment used in that Region.

The usual formation of the weed-killing train used is: engine; three converted tenders; tank wagons of weed-killer (usually not more than three); operators' living van; and brake-van. The maximum weight of the train loaded is about 200 tons excluding the engine.

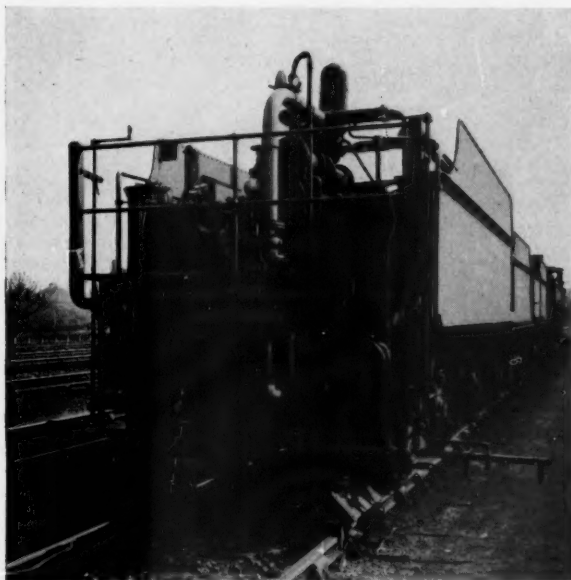
The three converted locomotive tenders, in one of which is fitted a steam pump, are fitted with a steam pipe, an overhead delivery pipe from the pump to each tank, and a gravity feed pipe

which leads to a sump under the tender containing the pump.

There is also a suction point on the pump for a flexible pipe to the rail tanks of weed killer. A by-pass on the pump delivery pipe operates if the pressure exceeds 60 lb. p.s.i. and returns the excess mixture to the tanks.

The total capacity is 9,500 gal.; jets from the steam pipes in each tank are used to stir the mixture during running.

There are nine spraying nozzles, the outer two on each side being fixed to



(Left) spraying equipment on tender, showing overhead delivery and feed pipes and spraying nozzles; (right) spray in action



Weedkilling demonstration at Lacock Halt sidings, using Bristol Ferguson tractor and Bristol power sprayers

retractable arms. Guards are fitted under the spraying boom so that the weedkiller is not sprayed on to the head of the rail where it might cause rail slip.

Weedkiller Mixture

The mixture normally used is five parts of water to one part of weedkiller; but this may be varied slightly to suit local conditions.

With a steam pressure of 60 lb. p.s.i.

and train proceeding at 20 m.p.h. the train sprays 400 gal. of mixture per mile of track. The total width of spray is 17 ft.

Weedkilling is also carried out by equipment coming under the heading of portable plant, as specified below.

Aerostyle Weedsprayer

The Aerostyle weedsprayer comprises a steel chassis plate mounted on pneumatic tyres at the rear and ball bearing

swivel castor at the front. A 20-gal. capacity tank is bolted to one end of the chassis plate and fluid emission is controlled by means of a stop valve at the pump to which a 30-ft. length of special solvent-resisting hose is attached for connection to the spray lance.

The power unit comprises a 1-h.p. four-stroke petrol engine driving the Aerostyle pump through a flexible coupling.

Allen Motor Scythe

The Allen motor scythe has been adapted to operate a pump for spraying weedkiller. The pump will maintain a pressure of 200 lb. p.s.i. with an output of two gal. per min. The basic set of equipment consists of a 4-ft. lance complete with adjustable vortex and three jet discs with a quick operating tap; 30 ft. of high pressure hose; and 15 ft. of suction hose with strainer.

This equipment can also be provided with a carrier attachment for conveying the tank of liquid weedkiller.

There is also the equipment comprising a tank of 120-gal. capacity mounted on two pneumatic-tyre wheels, with an internal agitator which, with the pump, is driven from the power take-off on a Ferguson tractor.

The weight of the spraying machine is 14 cwt. and the liquid is sprayed at a pressure from 75-100 lb. p.s.i. through two booms 5 ft. long, each extending from the rear and at right angles to the machine; there are seven nozzles to each boom.



(Left) Aerostyle weedsprayer, showing four-stroke petrol engine and pump; (right) Allen spraying pump

CONFERENCE IN LIEGE ON MOTIVE POWER.

—The Liège Engineers' Association is organising a three-day conference on railway power, to be held during the 7th Liège International Fair, on April 25, 26, and 27 next. Design, special features, record performances and speeds of electric, diesel, diesel-electric and gas-turbine engines will

be discussed. Delegates will be invited to make trips on locomotives on the Belgian National Railways and other railways. There will be in addition an exhibition of locomotives and railcars, and their components. The address of the organisers of the fair is 17, Boulevard d'Avroy, Liège, Belgium.

BRITISH INSULATED CABLES LIMITED EXETER AND PLYMOUTH OFFICES.—British Insulated Cables Limited announces that the company's branch offices at Exeter and Plymouth each have an additional telephone number. Their numbers are now Exeter 67308 and 3514 and Plymouth 60257 and 65151.

RAILWAY NEWS SECTION

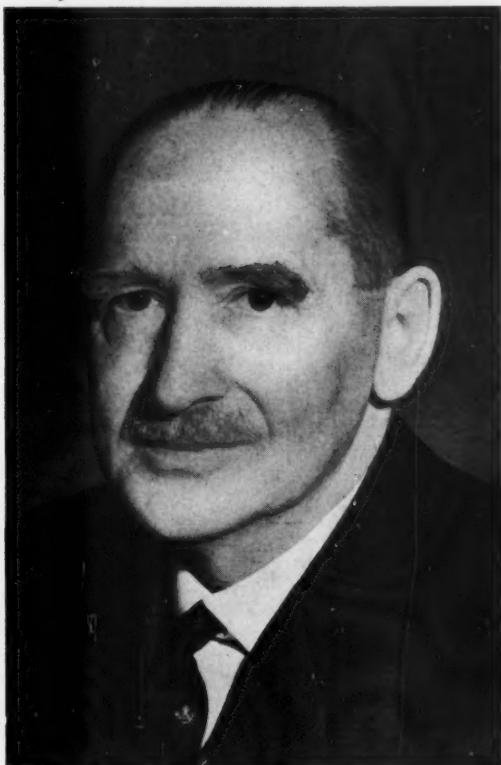
PERSONAL

Sir Robert Inglis, Chairman of the Glasgow & District Transport Committee, will be the leader of a team of four British experts which has been appointed as consultants to investigate the organisation of the Rhodesia Railways undertaking. Sir Robert Inglis made a similar investigation of Indian Railways ten years ago. The other members are Mr. A. Forester Fielding, District

General Sir Daril Watson, G.C.B., C.B.E., M.C., who, as recorded in our December 10 issue, has been appointed to the General Staff of the British Transport Commission as Secretary General, joined the Royal Mail Steam Packet Company at the age of 15, and served with it at home and abroad. In 1914, while on leave from Brazil, he joined the Army as a private, and he received a regular commission in 1915 in the Highland Light Infantry, as Captain. He joined the

after more than 33 years of service with the company. He was an original member of the Institute of Metals.

We regret to record the death on December 15, at the age of 70, of Sir Ernest Lemon, O.B.E., M.I.Mech.E., M.Inst.T., a former Vice-President (Traffic Operating & Commercial) of the London Midland & Scottish Railway. Sir Ernest Lemon was educated at Heriot Watt College, Edinburgh, and



General Sir Daril Watson

Appointed Secretary General,
British Transport Commission



The late Sir Ernest J. H. Lemon

Vice-President (Operating & Commercial),
L.M.S.R., 1932-43

Operating Superintendent, Leicester, London Midland Region, British Railways, Mr. I. C. Forsyth, Works Manager, Crewe, London Midland Region, British Railways, and Mr. F. A. Dadge, Assistant Accountant, Western Region, British Railways. The team will spend two months in Rhodesia, arriving early in January. On January 1, Sir Andrew Strachan, Secretary to the Federal Treasury, will assume his new appointment as Chairman of the Rhodesia Railways Board. It is understood that among the subjects which are to be reported on are the capital works programme, train operating methods, and the system of administration, together with the questions of further development and financing.

Mr. H. W. Howard, M.Inst.T., Assistant (Claims & Salvage) to Commercial Superintendent, Western Region, British Railways, has retired after 49 years of service. He has been succeeded by Mr. Norman S. Taylor, A.C.I.S., M.Inst.T., Traffic Costing Officer, Western Region.

Duke of Cornwall's Light Infantry in 1928, and commanded the 1st Battalion. Subsequently he officiated as the Commander of the Rasmek Brigade on the North West Frontier, and later became Commandant of the Senior Officers' School in India. At the outbreak of war in 1939 he was Brigadier of the General Staff at Eastern Command, and he went overseas as Brigadier, General Staff, 3rd Corps. He later took command of the 2nd Division, and then went to the War Office as Director of Special Duties, subsequently becoming, successively, Assistant Chief of the Imperial General Staff; Deputy Adjutant-General, and Quartermaster-General. He was appointed a Member of the Railway Executive in 1949, and, in 1953, he became Chief of General Services, British Transport Commission.

We regret to record the death on December 4, at the age of 81, of Mr. Ernest Millington, a former Chief Metallurgist of the London Midland & Scottish Railway at Derby. Mr. Millington retired in 1936

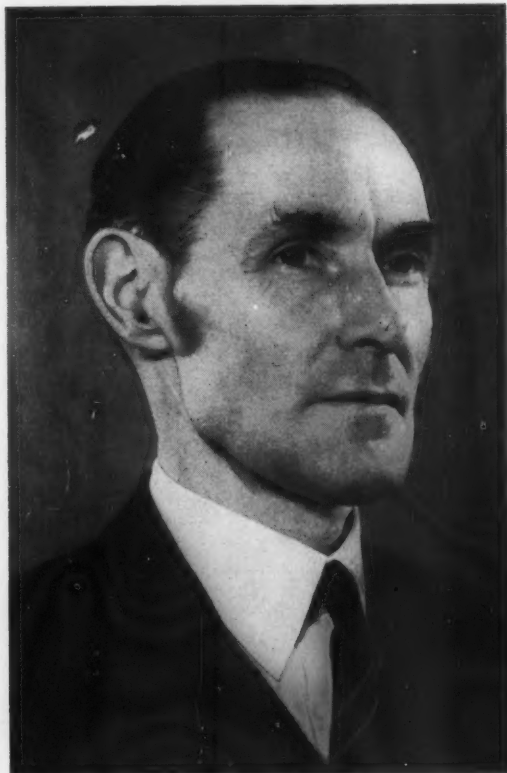
completed his technical training as a mechanical engineer with the North British Locomotive Co. Ltd., Brown Brothers, the Highland Railway Company, and Hurst, Nelson & Co. Ltd. In 1911 he joined the staff of the Midland Railway Company as Chief Wagon Inspector, and became Works Manager of the Carriage & Wagon Department in 1917. On the formation of the L.M.S.R. in 1923 he was made Divisional Carriage & Wagon Superintendent, and, in 1925, he became Divisional Superintendent (Newton Heath & Earlestown). In 1927 he was appointed Carriage & Wagon Superintendent for the L.M.S.R. In 1931 he was made the first Chief Mechanical Engineer of the company, covering locomotives and carriages and wagons, and, in 1932, he was appointed Vice-President (Operating & Commercial). In 1938 his services were lent to the Air Ministry for a period of a year, extended later at the request of the Government, and were transferred to the Ministry of Production for special wartime work on aircraft problems. On each of these special

duties he rendered marked services to the Government, and a Knighthood was conferred on him in 1941. The funeral was held at Golders Green Crematorium on Monday, December 20. In addition to family mourners the following were present: Mr. J. R. Pike and Mr. D. S. M. Barrie (British Transport Commission), Mr. J. W. Watkins (Chief Regional Manager, London Midland Region, British Railways), Mr. H. G. N. Read (Assistant Commercial Superintendent, London Midland Region, British Railways) and Lt.-Colonel H. Rudgard.

Mr. A. J. Pearson, Chief Administrative Officer, British Transport Commission, who, as recorded in our December 10 issue, now becomes a member of the General Staff of the Commission as Chief of General Duties, comes from Cheshire and received his railway training on the Cheshire Lines Railway. In 1931 he left the railway service to become an Assistant Editor of *Modern Transport*. In 1934, he rejoined the railway service at the invitation of Sir William Wood, and in 1937, became Assistant to Vice President (Finance and Service), L.M.S. Railway. When Lord

Mr. F. S. Whalley is resigning from the boards of the Vulcan Foundry Limited and Robert Stephenson & Hawthorns Limited, as from December 31 next, on the grounds of ill-health.

Mr. R. G. de Quetteville is resigning from the board of the Vulcan Foundry Limited on December 31 next. Mr. Godfrey Rigby, the General Manager, and Mr. Kenneth F. Suggett have been appointed Directors as from January 1, 1955. Mr. Suggett will relinquish his position as Secretary and will be succeeded by Mr. A. R. Adams.



Mr. S. B. Taylor
Chief Secretary to the
British Transport Commission



Mr. A. J. Pearson
Appointed Chief of General Duties,
British Transport Commission

Mr. S. B. Taylor, has been appointed to the General Staff of the British Transport Commission as Chief Secretary, entered the service of the Great Western Railway in 1915 and became Acting Secretary of the company in 1947. From December 1 of that year he held the position of Deputy Secretary of the British Transport Commission until July 1, 1951, when he was appointed Chief Secretary. Mr. Taylor is a Bachelor of Commerce of the University of London, and, in 1928, was awarded by the University the Sir Ernest Cassel travelling scholarship. This enabled him to study for one year at Columbia University, New York City, and later, by extensive travel in Canada and the United States, to gain wide experience of the transport and business methods of that continent. Mr. Taylor became an Associate of the Chartered Institute of Secretaries in 1926, and a Fellow in 1942. He is a member of the Council of that Institute. He has been connected with the Institute of Transport since 1933, and is now its Honorary Treasurer.

Stamp was killed in an air raid in 1941, and Sir William Wood became President of the L.M.S., Mr. Pearson was appointed Assistant to President. In this period with the L.M.S. he was given a variety of assignments, including work in Northern Ireland and the United States, on committees concerned with the "Square Deal," nationalisation, traffic costing, etc., on problems of organisation, and on Railway Rates Tribunal work. On the unification of the railways in 1948, Mr. Pearson became Chief Officer (Administration) at the Railway Executive and was closely concerned with the work of preparing the new organisation. His work has continued much the same since and has ranged over a good many matters at headquarters including the interim organisation in October, 1953. Mr. Pearson was for the second time elected a Member of Council of the Institute of Transport in 1954 and is holder of its Canal Gold Medal (1932) and its B.T.C. Award (1953). He is well known in transport circles in the United States of America.

The following changes in organisation in the office of the Assistant Electrical Engineer (Generation) have been announced by the London Transport Executive:—

Mr. J. Collins, B.Sc.(Eng.), Generating Station Superintendent (Greenwich), has been appointed Generating Station Superintendent (Lots Road).

Mr. W. Ward, M.Inst.F., Generating Station Superintendent (Neasden), has been appointed Generating Station Superintendent (Greenwich).

Mr. G. F. Withers, M.Inst.F., Assistant Generating Station Superintendent (Lots Road), has been appointed Generating Station Superintendent (Neasden).

Mr. Withers served an apprenticeship with the Edmundsons Electricity Corporation, subsequently being employed for five years with Babcock & Wilcox Limited. He joined the London Electric Railway Company in July, 1928, as a Combustion Engineer at Lots Road Generating Station.

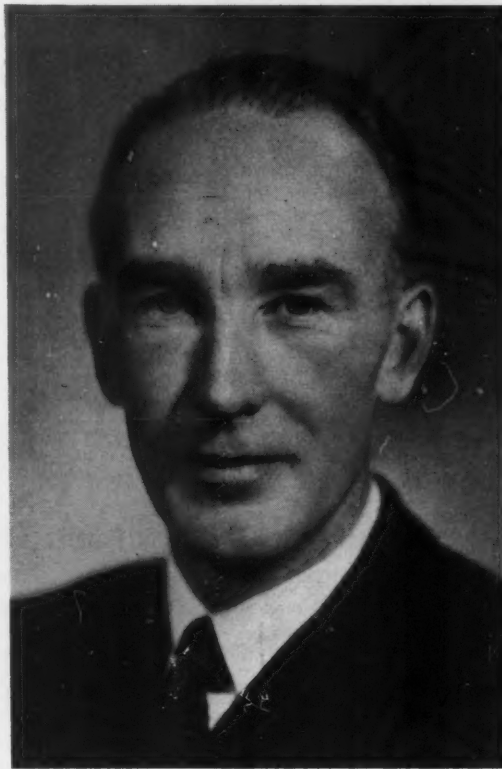
Mr. M. H. B. Gilmour, who, as recorded in our December 10 issue, has been appointed to the General Staff of the British Transport Commission as Chief Solicitor & Legal Adviser, will retain his duties as Solicitor to the Commission and head of its Legal Service. Mr. Gilmour, who was born in 1904, was educated at Leighton Park and abroad. In 1929, he was admitted a solicitor, and joined the staff of the Solicitor to the Great Western Railway Company in the same year. He was engaged in general and Parliamentary work from 1936 until 1940, when he joined the R.A.F.V.R. He served

Mr. David Blee, Chief of Commercial Services, British Transport Commission, who, as recorded in our December 10 issue, has been appointed to the general staff of the British Transport Commission as Traffic Adviser, joined the Great Western Railway in 1916. After a break of two years with H.M. Forces, he gained valuable experience of all phases of the administrative work of the Goods Department as Secretary successively to the Rates Manager, and to two former Chief Goods Managers. He gained academic distinctions at the London School of Economics in Railway Law,

the company's road transport; Principal Assistant to Chief Goods Manager in 1945; and Chief Goods Manager in 1946. He was appointed a full-time Member of the Railway Executive in 1947, and, in 1953, he became Chief of Commercial Services, British Transport Commission. He holds the rank of Colonel in the Engineering & Railway Staff Corps, R.E. (T.A.), is a Member of the International Chamber of Commerce, the British Travel & Holidays Association, and the Institute of Transport, of which body he is a Past Member of Council. He is the President of the British & Irish Rail-



Mr. M. H. B. Gilmour
Chief Solicitor & Legal Adviser,
British Transport Commission



Mr. David Blee
Appointed Traffic Adviser to the
British Transport Commission

in the Ministry of Aircraft Production and undertook special investigations for the then Minister, Lord Beaverbrook, being released with the rank of Squadron-Leader, at the request of the Minister of War Transport, in September, 1941. In that month, Mr. Gilmour was appointed Parliamentary, Rating & General Assistant to the Solicitor, Great Western Railway Company. He became Assistant Solicitor in 1943, Solicitor in 1945, and Chief Solicitor to the British Transport Commission in 1949. On the retirement of Mr. Miles Beevor in 1951, Mr. Gilmour also assumed the duties of Chief Legal Adviser.

Mr. H. A. Cruse, C.B.E., Director and General Works Manager of the Westinghouse Brake & Signal Co. Ltd., is retiring at the end of this year. He will remain a Director of the company and associated companies. Mr. Cruse will be succeeded as Works Manager by Mr. N. G. Cadman. Mr. W. W. Wilkins has been appointed Assistant Works Manager.

Railway Commercial & Operating Economics, and in Railway Statistics. He has occupied successive positions as Goods Agent, Slough; Chief Clerk, Exeter District; Assistant London District Goods Manager; and District Goods Manager in turn of the Shrewsbury, Liverpool, and Birmingham & South Staffordshire Districts. He was a lecturer in Railway Salesmanship and an active member of the G.W.R. London and Birmingham Debating Societies. Mr. Blee has been a member of the Shrewsbury, Liverpool, and Birmingham Chambers of Commerce; Liverpool, Manchester, and Birmingham & South Staffordshire Inter-Railway Conferences; Liverpool Port Emergency Committee, Dee Catchment Board; Midland Regional Canal Conference; West Midland Regional Road-Rail Conference; Employers' Panel, Ministry of Labour; and Railway Liaison Officer to various Government departments. He was appointed Assistant to Chief Goods Manager, G.W.R., in October, 1942, with special duties which included a re-organisation of

ways Inc., a Past President of the Railway Students' Association, a Member of the Permanent Commission of the International Railway Congress Association, of the Coastal Shipping Advisory Committee, and of the Railway Clearing House Committee. He is a Director of the Atlantic Steam Navigation Co. Ltd.

The following staff appointments have been announced by British Railways, London Midland Region:—

Mr. H. Guinness, Clerk-in-Charge, Hockley, Western Region, to be Goods Agent, Birmingham Curzon Street.

Mr. G. W. C. Smith, Stationmaster, Burnley Central, to be Yard Master/Stationmaster, Rose Grove.

We regret to record the death, at the age of 74, of Mr. H. C. R. Calver, Stationmaster, Liverpool Street Station, 1930-40.

With the appointment of General Managers for the British Transport Commission's

Docks & Inland Waterways activities respectively, the joint board of management constituted temporarily when the Docks & Inland Waterways Executive was abolished in 1953 will cease to exist. Accordingly, Sir Reginald Hill, who was Chairman of the Executive from its creation and later Chairman of the temporary board of management, will relinquish his appointment. The British Transport Commission expresses its appreciation of the services rendered by Sir Reginald Hill since his appointment to the chairmanship of the Docks & Inland Waterways Executive in 1947.

We regret to record the death, on December 11, of Mr. A. V. Bellamy, head of the Publicity Department of D. Napier & Son Ltd. for over eighteen years.

Mr. R. Robinson has been appointed Chief Accountant of the Butterley Co. Ltd. Before his appointment he was Assistant Secretary.

Mr. E. H. Ball, a Director of Associated Electrical Industries Limited and Managing Director of the British Thomson-Houston Co. Ltd., has been elected Chairman of Birlec Limited, the Birmingham furnace manufacturing firm recently acquired by Associated Electrical Industries Limited. Also elected to the board of Birlec Limited are Mr. W. W. Vinsen, Director of Manufacture, British Thomson-Houston Co. Ltd., and Mr. E. S. Little, Comptroller & Secretary of that company.

Mr. K. E. Woollatt, who has been with F. Perkins Limited, Peterborough, since 1941, and Secretary since 1945, is to become Finance Director. He will continue as

Secretary. Mr. M. I. Prichard, M.C., who has been Personal Assistant to the Chairman and Managing Director, Mr. Frank Perkins, since 1953, has also been elected a Director.

Mr. W. J. Crosland-Taylor, M.C., M.Inst.T., has accepted the Presidency of the Omnibus Society for the year 1955. Mr. Crosland-Taylor is General Manager of Crosville Motor Services Limited.

Sir Claude Gibb, Chairman & Managing Director of C. A. Parsons & Co. Ltd. and Chairman of A. Reyrolle & Co. Ltd., is on a short business visit to Australia. During his visit the new Whyalla works of C. A. Parsons of Australia Limited will be officially opened by the Premier of South Australia, the Hon. T. Playford. These works will manufacture condensers and feed heating plant, etc., for use with Parsons turbo-alternators supplied from the company's Heaton works at Newcastle-on-Tyne.

Mr. J. S. Gavin, M.Inst.T., General Manager of the Eastern National Omnibus Co. Ltd. and of the associated companies, Westcliff-on-Sea Motor Services Limited and Hicks Bros. Ltd., has been appointed an Executive Director of the Tilling group of companies.

Dr. Maurice Cook, Joint Managing Director, Imperial Chemical Industries Limited, Metals Division, Birmingham, and Senior Vice-President and President-Elect of the Institute of Metals, has been elected Chairman of the British Non-Ferrous Metals Research Association as from January 1, 1955, in succession to the Hon. R. M. Preston, who retires from office on December 31.

Alderman J. A. Mason, who is a representative of local authorities, has been appointed to be a member of the Transport Users Consultative Committee for the South Eastern Area.

ACCIDENT AT DORTMUND.—Fifteen persons were killed and 34 seriously injured on December 18 when a slow train ran head-on into a special express outside Dortmund Station. The express was carrying 500 children, all of whom escaped injury.

ROAD ACCIDENTS IN OCTOBER AND NOVEMBER.—Provisional road accident figures for November, issued by the Ministry of Transport & Civil Aviation, show that casualties totalled 21,369. There were 508 deaths, 5,157 serious injuries, and 15,704 slight injuries. Compared with the same month last year there was an increase of 3,332 in the total, or over 18 per cent. Final figures for October give a total of 22,329 casualties, or 3,510 more than in October, 1953.

PROPOSED URBAN ELECTRIC RAILWAY IN BIRMINGHAM.—Birmingham Corporation is to investigate the possibility of building a trans-city electric railway about 14 miles long, with a central section underground. In the open the line would use the central reservation of double-carriageway roads, such as the Bristol Road, which until the abandonment of the 3-ft. 6-in. gauge Birmingham tramways carried a reserved-track tramway in the centre. The underground section might have stations at the Horse Fair, New Street Station, Snow Hill Station, Central Fire Station, and also in Bagot Street.

PLASTIC TUBING FOR COLD LIQUIDS.—A plastic tubing with sufficient elasticity to withstand high pressure and provide immunity to corrosion by acids, alkalis, salt water, and chemical solutions, has been developed by Shires & Co. (London) Ltd., Guiseley, Yorkshire. The tubing, known as Shirene, is supplied in two alternative gauges, normal and heavy. The normal gauge tube cannot be threaded, and compression sleeve jointing is recommended; standard severed, and compression joints may be used with the heavy gauge tubing. The tubing is available in standard sizes up to 12 in. dia., in multiples of 50 ft. up to a maximum single length of 500 ft. This form of plastic tubing is particularly suitable for use where risk of frost damage is great.

BRITISH HEAVY ENGINEERING COMPANIES TO PARTICIPATE IN NEW INDIAN CORPORATION.—Associated Electrical Industries Limited, the English Electric Co. Ltd., and the General Electric Co. Ltd. are joining the British Group, which is to participate in the Industrial Credit & Investment Corporation of India to the extent of 1½ lakhs of Rupees (£10,000) each. Participation of United Kingdom subscribers to the new Indian Corporation was arranged through the Commonwealth Development Finance Company, and included the principal insurance companies operating in India, as well as the eastern exchange banks and industrial organisations with interests in that country. The three heavy engineering companies mentioned are taking part directly as foundation shareholders in the Corporation, in addition to their indirect interest in it through their shareholdings in the Commonwealth Development Finance Company.

ORGANISATION OF BRITISH RAILWAYS

ALTERATIONS IN TITLES OF REGIONAL OFFICERS

From January 1, 1955, the titles of the Chief Regional Managers of the six Regions of British Railways will be changed to General Managers.

The following additional changes in the nomenclature of railway regional officers will be made from the same date:—

Present Designation	New Designation
Assistant Chief Regional Manager	Assistant General Manager
Accountant	Regional Accountant
Regional Staff Officer	Regional Establishment & Staff Officer
Commercial Superintendent	Chief Commercial Manager
Operating Superintendent	Chief Operating Superintendent
Civil Engineer	Chief Civil Engineer
Signal & Telecommunications Engineer ..	Signal Engineer
Mechanical & Electrical Engineer ..	Chief Mechanical & Electrical Engineer
District Commercial Superintendent ..	District Commercial Manager
District Goods Superintendent	District Goods Manager
District Passenger Superintendent ..	District Passenger Manager

OPERATING ARRANGEMENTS, EASTERN AND NORTH EASTERN REGIONS

Since 1949, the Operating Department in the Eastern and North Eastern Regions of British Railways has been under the direction of one Operating Superintendent with headquarters in London and Divisional offices in each Region.

In pursuance of its policy of decentralisation, the British Transport Commission has decided to replace this arrangement by the establishment of a separate Operating organisation in each Region with headquarters in London and York respectively.

These changes will be introduced on January 1, 1955, and the Commission has approved the following appointments:—

- Mr. H. C. Johnson, at present Divisional Operating Superintendent, Eastern Region, London, to be Chief Operating Superintendent, Eastern Region.
- Mr. A. P. Hunter, at present Divisional Operating Superintendent, York, to be Chief Operating Superintendent, North Eastern Region.
- Mr. L. Sproat, at present Assistant Divisional Operating Superintendent, York, to be Assistant Operating Superintendent, North Eastern Region.

African Railway General Managers Conference

Exchange of views at Johannesburg meeting on a wide range of subjects and problems common to African systems

The first conference of general managers of a number of African railways was held in Johannesburg in October. It was initiated by Mr. D. H. C. du Plessis, General Manager of the South African Railways, who in his opening address said that railways and other transport undertakings had found the interchange of ideas, knowledge and experience invaluable, hence the establishment of such bodies as the International Railway Congress Association and the Association of American Railroads. The railways of Central and Southern Africa, he felt, had so many problems peculiar to themselves that nothing but good could come from periodical conferences between their chief executives. Although the South African Railways had been spending on an average £29,000,000 a year during the last five years on new works and the purchase of locomotives and rolling stock, they had not yet caught up with the phenomenal development of the country. The common factor in almost all the railways represented at the conference was the difficulty of meeting the traffic demands of an Africa in economic revolution.

Centralised Traffic Control

Both Lt.-Colonel H. B. Everard, General Manager of the Rhodesia Railways, and Mr. A. Pereira Leite, General Manager of the Mozambique Railways, spoke in praise of centralised traffic control. Lt.-Colonel Everard said that they were so satisfied with the c.t.c. already installed and the increase of traffic occasioned by it that they were going to install it from the colliery at Wankie through to Bulawayo. The cost of installation worked out at about £2,407 per mile, but the estimated annual saving in station foremen's wages was £16,500 and heavier traffic was being run far more punctually.

Mr. J. A. Kruger, Chief Superintendent (Operating), South African Railways, referred to the different means of controlling single line on his system. New methods under consideration for giving relief were a non-token working system at crossing places and an adapted form of c.t.c. Mr. Pereira Leite explained the telecommunications system on the lines serving Lourenço Marques. Stations, locomotives, and vans were being fitted with receivers and transmitters so that messages could be exchanged between drivers and guards of moving trains.

Hump Yards

The working of the sole hump marshalling yard of the S.A.R., at New Kazerne, was described by Mr. Kruger, who said that the S.A.R. would gladly pass on to other railways interested a resumé of its experimental work on this subject. Mr. du Plessis added that it would also be glad to pass on to them conclusions which his operating and technical officers reached on what the Germans claimed to be the most modern mechanised hump yard in the world, near Cologne.

Standardisation

Delegates agreed that a careful study of the problems of standardisation was desirable. If information were freely exchanged on basic design features, said Dr. L. Douglas, Chief Mechanical Engineer, S.A.R., it might lead to considerable

standardisation of stock and track over the years. At the Central & Southern Africa Transport Conference in 1950, said Mr. Moffatt, Chief Civil Engineer, S.A.R., it was agreed to fix the main loading gauge dimensions at 13 ft. high and 10 ft. wide, which the S.A.R. thought should be the maximum for the 3 ft. 6 in. gauge. Unfortunately no decision on that was reached at the Conference on Standardisation of Mechanical Equipment on Colonial Railways in 1952. Mr. G. Gibson, Chief Mechanical Engineer, East African Railways, said that by standardisation it was hoped that it would be possible eventually to buy wagons and locomotives almost "off the shelf" at a much lower price.

Mr. A. F. Kirby, General Manager, East African Railways, thought that standardisation might warrant a Pan-African standardisation conference, which would include all African railways. On the E.A.R. every locomotive and wagon could be converted fairly simply from metre- to 3 ft. 6 in. gauge, and all their steel sleepers were manufactured with this end in view. The conversion might not happen for another 15 to 20 years.

New Line in Congo

The importance of the new line being built jointly by and connecting the Upper Congo-Great African Lakes and Bas Congo-Katanga Railways between Kamina and Kabalo, 276 miles, was emphasised by Mr. A. Marissiaux, Upper Congo-Great African Lakes Railway. When it was completed a wagon would be able to go from Cape Town 3,000 miles northward to Kindu. The connection with Albertville on Lake Tanganyika would open up a new trans-African route, as the 80-mile crossing of the lake to Kigoma on the Tanganyika Central line of the E.A.R. could be done without difficulty. As a complement to this scheme, pointed out Mr. Kirby, the Belgian Government was financing the construction of a new deep-water berth at Dar es Salaam.

Elastic Track

It was disclosed by Mr. Moffatt that the S.A.R. had been experimenting with types of elastic spikes and had placed orders for considerable lengths of different types of sleepers and fastenings, based on the type developed in France, using a rubber pad. Major L. F. A. Mendes, Assistant, Commercial, Mozambique Railways, said that elastic track was being considered for two sections of the Lourenço Marques system, and Lt.-Colonel Everard announced that the Rhodesia Railways hoped to lay a length of experimental track with elastic spikes and Macbeth spikes, one of rubber padding on wooden sleepers, and one of prestressed concrete sleepers with rubber pads. The elastic spike with steel sleepers was stated by Mr. H. W. Stevens, General Manager, Nyasaland Railways, to be standard practice on his system.

Other matters discussed included stores and stores departments, tourist traffic, staff training and housing, exchange of information between railways, and goods shed design and mechanisation. Delegates asked for a report on the performance of the South African condensing locomotives. Dr. Douglas explained that it was too early to supply information of value on their experience of that type, but they were confident that they would make a thorough

success of the operation of those locomotives from the point of view of maintenance.

Mr. L. C. Grubb, Assistant General Manager (Technical), S.A.R. stressed that the introduction of the condensing locomotive was dictated not so much by the possible saving in water consumption as by the fact that no water was available.

An exchange of views on the maintenance of train-lighting equipment and air-conditioned stock, and the length of engine runs concluded the general proceedings. Before the conference adjourned Mr. A. F. Kirby thanked the South African Railways for their admirable arrangements for the conference. All the smaller railways looked to the S.A.R. for aid and advice and were grateful for the ready and generous way in which they had offered them information on any subject.

Mr. du Plessis replied that it had been both pleasurable and of value to the South African Railways to welcome them. They had met as railwaymen and discussed their problems frankly. Far from the Conference being one-sided, he felt that the S.A.R. had learnt much from the other railways and in the future would learn still more.

The Conference is being followed by an exchange of information between railways. The next meeting will take place in Nairobi in November, 1955.

Europ Wagon Pool

The Swiss Federal Railways, as the presiding body of the Europ scheme, recently summoned the Europ Committee to meet at Lucerne to settle principal questions of principle on common user. The ten participating railways represented were the French National, German Federal, Saar, Austrian Federal, Belgian National, Danish State, Italian State, Luxembourg National, Netherlands, and Swiss Federal.

Agreement was reached on all items of the agenda. For accounting and balancing reasons the total number of Europ stock has to be ascertained for each individual railway, as explained in our July 24, 1953, issue. The question of to which participating railway wagons sent to non-member railways should be debited required to be settled. As traffic with those administrations is being increased, there are some 3,000 outstanding Europ wagons to be divided between the common user administrations. The committee decided that in future the number of wagons in question should be debited to individual member administrations on whose lines the wagons were consigned to the non-member railways, for the time of their retention by those railways. The administrations thus debited will receive the appropriate share of the detention charges paid by the non-member railway. On the other hand, the consigning railway has to take over proportionally any liabilities in repair costs for wagons that might return damaged into the common user system.

A revised agreement on common user will come into force on October 1, 1955. The pool, which consisted of 152,700 wagons in March, 1953, has been increased by 10,750 wagons. The French and German railways alone have contributed an additional 5,000 open wagons each. In 1955 4,800 bogie flat wagons of 18 to 20 m. loading length are expected to come into common user stock.

Peruvian Corporation Limited

Reduced surplus; need to charge economic rates for carriage of raw materials

The sixty-fourth annual general meeting of the Peruvian Corporation Limited was held on December 16 in London, Mr. W. H. White, Chairman, presiding.

In his statement circulated with the report, the Chairman said that the gross revenue from railways, steamers and other assets for the year amounted to £3,561,035, compared with £3,909,404 in the immediately preceding year. At the same time, expenditure fell to £3,331,730 from £3,635,785. After adding back an exchange reserve no longer required, the surplus was £268,744, which compared with £392,883 in the previous year, and was consequently disappointing. The figures were arrived at before debiting debenture service (£339,914), payment of which is postponed under the Scheme of Arrangement with the debenture holders, and taxes paid and accrued during the year (£215,357).

Two coupons on the Corporation's debentures (due April 1, 1948, and October 1, 1948) were paid during the financial year under review, and one due April 1, 1949, was paid since its close. This meant that the equivalent of a year's debenture interest was paid during the year and consequently unpaid debenture interest arrears had not increased. After the above interest payments had been deducted, the balance of net earnings notionally carried forward in the books of the Corporation to meet future payments of debenture interest was £587,517, but under the terms of the scheme with the debenture holders the figure under this heading only becomes available for payment of interest if the current requirements of the Corporation's business permit. In fact, since new and replacement equipment essential for the continuance of our operations had to be financed out of revenue, and also because there was a large balance of bolivianos to be converted into sterling, it would be appreciated that this balance was not at present represented by sterling funds which could be used for the payment of debenture interest.

The Chairman said that he was glad to record that the value of orders outstanding for locomotives, rolling stock, etc., had been reduced from £453,000 last year to approximately £145,000 at June 30, 1954, and compared with £1,400,000 in the year 1948.

Debenture Holders' Moratorium

The committee had extended the duration of the present scheme until December 31, 1955, with the right to terminate it at an earlier date. Before the expiry of the term, the directors would formulate a new scheme of arrangement with the debenture holders in the light of conditions obtaining then and in the foreseeable future.

Prospects

It was difficult and indeed dangerous, said the Chairman, to prophesy what might happen in the future, particularly after their experience of so many disappointments and setbacks in the past. But, at least, he could say with some confidence that he retained a great measure of faith in the economic development and progress of the countries in which they operated. As in all parts of the world, their railways faced growing competition from road transport, but the latter could never take from them the carriage of bulk minerals and

the like; it was because of this and because of his expectation that the Perene Colony would yield increasing profit, that he was optimistic about their future provided that they were allowed to charge economic rates for the transport of what he hoped would be increasing quantities of raw materials. The report and accounts were adopted.

Questions in Parliament

Closure of Branch Lines

Mr. Stephen Davies (Merthyr Tydfil—Lab.) on December 15 asked if the Minister of Transport & Civil Aviation would give the names of those branch railways in Wales which had been closed down either wholly or in part, or for freight and not passenger traffic, or vice versa, since vesting day.

Mr. John Boyd-Carpenter in a written reply said that lines closed to passenger and freight traffic were the Tanat Valley, Kington-New Radnor, Llantrisant Common, Brymbo-Mold, Quakers Yard (High Level)—Merthyr, Ruthin-Corwen, and the Holywell. Lines closed to passenger traffic were: Swansea (St. Thomas)—Brynamman, Aberayron, Brynmawr-Ebbw Vale, Llantrisant and Cowbridge, Newcastle Emlyn-Pencader, Llantrisant-Pontypridd, Ynysybwl, Blaengarw, Burry Port and Cwmawr, Bethesda. Lines closed to freight traffic were: Mountain Branch from Gwlston Junction to termination, Dinas Mawddwy, Wheatsheaf, Pwllyrhebog, section of South Wales Mineral Line, Corris, section of ex-Port Talbot Railway between Tynmaen and Velindre, Pontcysyllte, Ponkey (serving private sidings), Brymbo (North)—Plas Power (freight connecting line), Red Wharf Bay. Of these, all except the section of the South Wales Mineral Line and the Brymbo (North)—Plas Power line were freight only at vesting day.

Heavy Freight Traffic

The Minister of Transport & Civil Aviation was asked on December 15 by Mr. James Harrison (Nottingham E.—Lab.) if he would consider instituting special inquiries with a view to encouraging consignees of suitable heavy freight traffic to use the rail services in preference to the roads and thereby assist in reducing present road traffic density.

Mr. John Boyd-Carpenter, in a written reply stated: No. In the case of indivisible loads of over 150 tons or more than 20 ft. wide, permission has to be obtained for them to be hauled by road. In other cases, traders should have a free choice. By means of re-organisation, modernisation, and more flexible freight charges, British Railways are fitting themselves to compete more effectively for these traffics.

Great Central Permanent Way

The Minister of Transport & Civil Aviation was asked on December 15 by Mr. James Johnson (Rugby—Lab.) whether he would consider the possibility of converting the old Great Central Railway permanent way from Marylebone to Rugby into a modern trunk road; and what he estimated to be the approximate cost of such an operation.

Mr. John Boyd-Carpenter stated in a written reply: No. The B.T.C., which is

responsible for this railway, regards it as an important route carrying traffic which could not be diverted to alternative routes.

B.T.C. Flood Damage Claim

Mr. Percy Morris (Swansea W.—Lab.) on December 15 inquired why the claim of the B.T.C. for £351,630 compensation in respect of east coast flood damage 1953, Account No. VI-IB, Maintenance of & Renewal of Way & Structures, was refused.

Mr. John Boyd-Carpenter (Minister of Transport & Civil Aviation) in a written reply stated: Because it was not the policy of the Government to make payment in respect of east coast flood damage to any large business concern, which could decide either to insure or carry its own risks.

Disposal of Road Haulage Assets

Mr. E. G. Willis (Edinburgh E.—Lab.) on December 15 wanted to know how many units of British Road Services in Scotland have been offered for sale; what is the total number of vehicles in these units; and the number of units and vehicles actually sold to date.

Mr. John Boyd-Carpenter (Minister of Transport & Civil Aviation) in a written reply stated: 2,463 vehicles in 498 units have been offered and 1,188 vehicles in 356 units have so far been sold. In addition two companies comprising 130 vehicles have been disposed of under section 5 of the Act.

Neath-Merthyr-Abergavenny Road

Mr. Stephen Davies (Merthyr Tydfil—Lab.) on December 15 asked the Minister of Transport & Civil Aviation, in view of the intention of the B.T.C. to close down for freight transport the Merthyr Tydfil-Abergavenny railway, if he would take steps to expedite the large-scale improvements necessary to the Neath-Merthyr-Abergavenny road.

Mr. John Boyd-Carpenter stated in a written reply: Improvements to the Heads of the Valleys Road were announced as part of the programme outlined on December 8, 1953. I am not aware of any material change in the railway freight services available to traders in this area.

Staff & Labour Matters

Railway Wages

The Minister of Transport & Civil Aviation, Mr. John Boyd-Carpenter, has declined to intervene in the dispute between the British Transport Commission and the N.U.R. on the question of improved rates of pay for railway conciliation staff. When leaders of the N.U.R. met Mr. Boyd-Carpenter on December 13 they were told that the question of a subsidy could not be entertained, but the Minister undertook to consult his colleagues in the Government on the points put forward by the deputation. At the same time it was pointed out that means existed for the demands to be pursued through the industry's normal negotiating machinery.

The Minister's decision was conveyed to the General Secretary of the N.U.R. in a letter dated December 20. The letter stated that the Government could not intervene without dealing a serious blow to the negotiating machinery in the industry as the normal processes of negotiation and arbitration have not been exhausted.

It is suggested that the union leaders should see the B.T.C. again and if they fail to agree they should take the claim to the Railway Staff National Tribunal for

a decision. The letter reveals that the Commission told the Minister that if the Tribunal ruled that the claim should be met, it would be necessary for the Commission to consult the Government in view of their obligations under the 1947 Transport Act. Under this Act there is a statutory obligation upon the Commission to strike a balance between income and expenditure taking one year with another.

Strike Threat

Threats of strike action if the union demands are not met persisted this week. At Sheffield on December 19 delegates at a meeting of the Cheshire & Chesterfield Area Council of the N.U.R. passed a resolution calling for early strike action. The resolution which was in the form of a request to the Council executive committee said that the men were convinced that they would get no satisfaction from the present negotiations. The Secretary said that a date for strike action had not been given as the Council did not wish to embarrass the executive committee of the union.

Manchester District Council of the union—representing men in Lancashire, Cheshire and Derbyshire on December 20 endorsed its Committee's resolution calling for a special delegate meeting on January 9 to decide what action should be taken. The North-Western District Council decided on December 18 to take similar action.

London Busmen's Wages

Delegates representing some 58,000 London busmen met on December 20 to consider the improved pay offer which London Transport have made following a meeting last week at the Ministry of Labour between union leaders and representatives of the London Transport Executive.

Provincial Busmen's Wages

The National Council for the Omnibus Industry on December 16 resumed consideration of the trade union claim for a substantial increase in wages and alterations and improvements in working conditions. At the meeting the employers made their considered reply; and in accordance with the procedure laid down by the constitution of the Council the difference which exists between the two sides is being referred to a conciliation committee for examination and report back to the Council. The claims affect some 100,000 workpeople in the provincial bus industry employed by the private bus companies and B.T.C.-controlled undertakings.

Contracts & Tenders

The Société Alsthom has received from the Ecuadoran National Railways an order for five Bo-Bo articulated diesel-electric locomotives of 1,200 h.p. on site and of about 85 tons weight. Engine equipment is to be of the Sulzer type, supplied from the C.C.M.-Sulzer works at St. Denis, near Paris.

British Railways, North Eastern Region, have placed the following contracts:—

Craven Bros. (Manchester) Ltd., Stockport: one crankpin returning and quaterning machine, Darlington Locomotive Works

Geo. Cohen Sons & Co. Ltd., Stanningley: one two-ton mobile crane, District Engineer's shops, York

Robertson Thain Limited, Ellesmere Port: Ventilation, Copley Hill Motive Power Depot

General Electric Co. Ltd., Birmingham 6: electrical equipment, electric car sheds, Gosforth, Newcastle-on-Tyne

British Railways Eastern Region have placed the undermentioned contracts:—

Priestman Bros. Ltd., Hull: provision of two Priestman "Wolf" Mark IIIB crawler mounted grabbing cranes for use at Norwich and Stratford Motive Power Depots

Tersons Limited, London, N.3: maintenance of permanent way in the Kings Cross, Peterborough and Doncaster districts

W. & C. French Limited, Dedham: reconstruction of underline bridge over Little Ouse, between Barnham and Thetford Bridge

Richard Costain Limited, London, S.W.1: alterations to superstructures of ten overbridges between Shenfield and Chelmsford before electrification

Craven Bros. (Manchester) Ltd., Reddish: provision of one electrically-driven "Craven" double-head locomotive outside crankpin quaterning machine for Doncaster Locomotive Works

In our December 17 issue it was stated that an order for 150 high-side wagons placed with the Metropolitan-Cammell Railway Carriage & Wagon Co. Ltd. had been increased to 200. These wagons are for the Benguela Railway.

The closing date for tenders for rolling stock for Greece, detailed in our November 26 issue, is now January 20.

The Director General of Supplies & Disposals, New Delhi, invites tenders for:—

- (a) 160,950 brakeblocks, various (four items)
- (b) 3,000 blocks for screw coupling
- 2,000 pivot pins for buffer coupling
- 300 bracket sprung hangers

Tenders are to be submitted to the Director General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting references (a) SRI/17573-E/II; (b) SRI/17124-E/II. They will be received up to 10 a.m. on (a) December 30; (b) January 5.

Forms of tender are only available for purchase in India from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; Deputy Director, Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the India Store Department, Government Building, Bromyard Avenue, W.3, on application to the "CDN" Branch, and the drawing can be seen at the offices of Hodges, Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained if required at a fixed price per sheet.

RAILWAY & GENERAL ENGINEERING CO. LTD.

—The directors of the Railway & General Engineering Co. Ltd. have announced that they have been advised that the offer made on October 29 by H. J. Baldwin & Co. Ltd. to purchase the whole of the issued share capital has now lapsed.

Notes and News

Vacancies for Senior Assistant Engineer and Engineering Draughtsman.—Applications are invited for the posts of senior assistant engineer, speaking fluent Spanish, also an engineering draughtsman, required by the Southern Railway of Peru. See Official Notices on page 728.

London Midland Region Christmas Travel Arrangements.—The London Midland Region will run 720 extra main line expresses between December 22 and 28. Nearly half this number will run to and from London (Euston and St. Pancras) and the Midlands, the North and Scotland. On Christmas Eve 222 extra main line trains are scheduled. On December 28, 192 additional expresses have been planned.

Institute of Transport: Filmstrips as an Aid to Teaching Transport Subjects.—"Filmstrips as an aid to the teaching of transport subjects" will be the subject of an Institute of Transport Education Discussion Meeting at 6 p.m. on Monday, January 3, 1955, at 80, Portland Place, London, W.1. The programme will include projection of filmstrips on Elements of Transport made by the British Transport Commission Films Unit in collaboration with a small panel of Institute members. Mr. J. M. Leighton-Bailey, and Mr. G. Musk will speak.

Specialty Treated Reamers.—English Steel Corporation specialty treated machine reamers, $\frac{1}{4}$ in. dia., have been introduced for the reaming of connecting rod bolt holes at the works of a leading diesel engine makers in the United Kingdom. Life between reamer regrinding was previously 150-200 holes, with a total life of 900 holes. E.S.C. reamers produced 700-800 holes between regrinds with a total life of 3,100 holes.

Christmas and New Year Train Services: Scottish Region.—The Scottish Region of British Railways is to run over 100 additional trains to England during the Christmas and New Year Holidays. These include 50 from Glasgow to London, Birmingham, Liverpool, Manchester, Sheffield, and so on, and 40 from Aberdeen, Glasgow, and Edinburgh by the East Coast route to London, York, Newcastle, and so on. A similar number of extra trains will run from England to Scotland. Many extra trains will also be run in Scotland for Christmas and New Year travellers between centres such as Glasgow and Edinburgh, Glasgow, Perth, and Aberdeen, Glasgow and Inverness, Edinburgh and Fife and Edinburgh, Dundee, and Aberdeen. There will be a number of modifications to through train services between England and Scotland on Christmas Day and December 26, and local services within Scotland will be subject to alteration and suspension during the holidays.

Western Region Christmas Arrangements.

—The Western Region of British Railways will run some 300 special long distance express trains during the Christmas period. Today (Christmas Eve) the peak day, 41 extra trains will leave Paddington, including 16 to the West of England, 18 to South Wales, and 7 to the Midlands. Twenty-one extra trains will run into Paddington. For the convenience of residents in the suburbs, a special train leaves Ealing Broadway today at 4.50 p.m. for Swansea. A special train will leave Reading for South Wales at 2.23 p.m. On Christmas

Day there will be a Sunday service with convenient early morning special trains on some branch lines in the West of England and in Wales to connect with overnight trains from Paddington. Sunday services on Boxing Day will be augmented by 44 relief trains, including through trains from the Aberdare, Rhymney, and Rhondda districts, and the Eastern and Western Valleys to Paddington. Special sailings have been arranged between Fishguard and Rosslare, and there are modifications over the Christmas holiday period in the Fishguard-Cork, Fishguard-Waterford, and Weymouth-Channel Islands steamer services.

Lather Dispensing Valve.—The dispensing valve developed by A. G. Wild & Co. Ltd., reference to which was made on page 670 of our issue of December 10, discharges a suitable quantity of lather, not liquid soap, at each depression of the plunger.

Christmas Decorations at London Midland Stations.—Nineteen London Midland Region stations, including Carlisle, Liverpool, Leicester, Manchester, Nottingham, Preston, and Stoke have been decorated for Christmas with trees, balloons, holly, and lanterns. At many stations collections are being taken for charities. The Great Hall at Euston has 12 large Christmas trees, floral decorations, and five 3-ft. illuminated lanterns suspended from the balcony, while at St. Pancras similar lanterns and dwarf Christmas trees add gaiety to the concourse. A choir of members of all grades of staff sang carols from the staircase of the Euston Great Hall

on December 23 and broadcast on the B.B.C. Light Programme between 6.15 p.m. and 6.45 p.m. Raymond Baxter described the scene to listeners and Sir Brian Robertson, Chairman of the British Transport Commission, and Mr. J. W. Watkins, Chief Regional Manager, London Midland Region, with principal officers, joined in the singing.

Hale & Hale (Tipton) Limited.—The review of the affairs of Hale & Hale (Tipton) Limited and subsidiaries for the trading year to August 4 last by Mr. W. Edgar Hale, Chairman, shows that there was a trading profit of £51,779, compared with £89,208 for the preceding year. Net profit was £19,796 (£29,280). The Chairman said that the trading year had been difficult as the slight recession experienced during the latter part of 1953 continued through early 1954. He was able to report a substantial improvement in orders recently.

New High Frequency Ignition System.—The Plessey Co. Ltd., in conjunction with D. Napier & Son Ltd., Acton Vale, London, W.3, the patentees, have developed a new type of ignition system operating on the capacitor discharge principle. This system has advantages for certain applications such as oil-fired boilers, gas turbines and so on, because of its high spark repetition rate, low initial firing delay, and its use of a conventional type of sparking plug. The insulated gap of the igniter plug employed with the Napier-Plessey system is ionized by means

of a high-frequency, high-voltage initiating surge, which is immediately followed by a low-voltage discharge of relatively large energy content. The high-frequency component is additionally advantageous in ensuring a discharge through fouled plugs, but the combined discharge is, however, non-lethal. The repetition rate of this discharge is approximately 50 per sec.

New Sheringham Poster.—British Railways, Eastern Region, have produced a new poster advertising Sheringham. The poster, which depicts a typical summer scene, is bright and attractive with much attention paid to detail. The artist, Tom W. Armes, is a native of Sheringham. The poster has been commissioned by the Public Relations & Publicity Officer of the Eastern Region.

Scottish Motor Traction Co. Ltd. Report.—The directors of the Scottish Motor Traction Co. Ltd. have recommended a dividend of 27½ per cent, less tax, for the year ended September 30, 1954. The gross income was £158,372, compared with £140,293 for the previous year. Taxation amounted to £78,603 (£70,731). The proposed dividend takes £76,077 (£62,245), leaving £100,460 (£105,735) to be carried forward. The consolidated balance sheet totalled £5,728,117 (£4,537,386). Fixed assets were £634,148 (£577,373), and current assets £5,092,054 (£3,958,098). Current liabilities appeared as £2,087,428 (£1,098,151). Revenue reserves and surplus amounted to £3,137,699 (£2,936,245) and capital commitments stood at £115,000.

British Transport Yacht Club Annual Dinner.—The British Transport Yacht Club held its second annual dinner on December 10 at the Euston Dining Club, when some 60 members and friends were present. Those present included Sir Reginald Hill, Chairman of the Docks & Inland Waterways Board, and Mr. J. W. Watkins, Chief Regional Manager, London Midland Region. During the evening Lady Hill presented trophies: the Inter Services (Founders Cup) to Mr. A. H. Allen, British Railways, Western Region; the Helmsman (Commodore's Cup) to Mr. M. H. A. King, Eastern Region; and the Novices (Lady Hill Cup) to Mr. R. S. Haynes, Hotels & Catering Services. Mr. K. W. C. Grand, Chief Regional Manager, Western Region, who had hoped to be present, was represented by Mr. S. G. Ward, Assistant Regional Staff Officer, Western Region. Entertainment was provided by the members, and sea shanties were sung by the whole company.

Hurst, Nelson & Co. Ltd. Meeting.—At the annual meeting of Hurst, Nelson & Co. Ltd. in Glasgow recently, the Chairman, Lt.-Col. Arthur N. Forman, said that having regard to the conditions prevailing in the year ended March 31 last, and the heavy burden of taxation, there was good reason to regard the profits for the year with satisfaction. In the current year, the improvement in steel supplies had enabled output to be increased correspondingly. In his circulated statement the Chairman had said that profits, before providing for depreciation and taxation, were £132,353, compared with £134,541 in the previous year. There was growing competition, he said, from abroad, and increasing costs at home, but re-equipment had improved productivity and strengthened competitive potential. The report was adopted. An ordinary dividend of 12½ per cent will be paid on November 11, together with a cash



The Great Hall at Euston, London Midland Region, in Christmas week

distribution of 1s. per ordinary share out of capital realised from the sale of a trade investment.

B. & S. Massey Limited: Interim Dividend.

—The directors of B. & S. Massey Limited have declared an interim dividend of 5 per cent on the ordinary shares in respect of the year to March 31, 1955. This is the same as that declared in 1953-54, but there has been a scrip issue of 50 per cent in the interim period.

Jonas Woodhead & Sons Ltd. Results.

—The directors of Jonas Woodhead & Sons Ltd. have declared a final ordinary dividend of 10 per cent for the year ended September 30, 1954. This makes a total of 15 per cent for the year on the capital increased by a 7-to-25 scrip issue and compares with 17½ per cent for the previous year on the former capital. Group profits, after tax of £95,340 (£144,154) were £78,115 (£54,521). Profits attributable to the holding company were £74,825 (£54,393). Tax provisions made in earlier years and no longer required amounted to £24,085 (£5,840).

Ransome & Marles Bearing Co. Ltd.

—At the annual general meeting of Ransome & Marles Bearing Co. Ltd. on October 15, Mr. E. W. Senior, Chairman, presiding, said that the fact that in a year of increasing world competition the results were substantially the same as those of the preceding year was largely the result of the policy of steady expansion and equipment of the firm's factories. This had made it possible to minimise the effects of increased material costs and wage rates through increased production and productivity. The production of the new factory at Annfield Plain was exceeding that planned. The surplus of liquid assets shown by the consolidated balance sheet is £2,707,341, and, although over £400,000 has been spent on fixed assets during the year, the cash position at £278,223 shows a slight increase, of £47,410.

General Electric Co. Ltd.: New Premises in Leeds.

—The reconstructed premises of the General Electric Co. Ltd. in Wellington Street, Leeds, were opened on December 14 by Mr. D. Bellamy, Chairman of the Yorkshire Electricity Board, in the presence of Mr. Leslie Gamage, Vice-Chairman & Joint Managing Director, G.E.Co., and visitors. The premises of the company in Leeds were opened in Wellington Street in 1911 and extensions were made from time to time until a fire destroyed all but the outer walls two years ago. The new premises accommodate offices, stores, and showrooms. Fluorescent lighting has been installed throughout the office accommodation, which also has additional light from cross-reefed glass wall panels. Showrooms for domestic equipment and lighting fittings are on the first floor. The present manager at Leeds is Mr. F. Smith.

Railway Benevolent Institution.—At a meeting of the board of the Railway Benevolent Institution on December 15, annuities to seven widows and five members were granted, involving an additional liability of £203 a year. Sixty-nine gratuities amounting to £614 were granted to meet cases of immediate necessity. Grants from the casualty fund during November amounted to some £513. The flag day collection on all Regions of British Railways on August 20 raised £7,648. Regional contributions were: Southern, £2,384; London Midland, £1,661; Western,

£1,303; Eastern, £962; Scottish, £642; North Eastern, £614. Miscellaneous sources contributed £81. A cheque for £100 has been received from the National Union of Railwaymen towards the funds of the Institution and St. Christopher's Children's Home at Derby.

Associated Commercial Vehicles Limited Results.

—Group profits of Associated Commercial Vehicles Limited for the year ended September 30, 1954, were £451,474. This was a considerable reduction on the 1952-53 figure of £774,399. Tax, already deducted, amounted to £561,034 (£935,817) and minority interests to £7,525 (£8,073). Adjustments credited referring to profits of earlier years were £64,207 (£15,573). An ordinary dividend of 12½ per cent is proposed, making, with the 10 per cent interim dividend, 22½ per cent (same), and absorbing £258,328. The directors report a large fall in turnover. The consequent decrease in profits has arisen from the large drop in sales of vehicles at home and the introduction of new models to meet the demand for vehicles with a more economical fuel consumption. The group has now marketed new medium weight passenger and goods vehicles, which have met with success. The value of unexecuted orders on hand is at a much higher level than at the comparable date last year. Export sales were maintained.

International Football Match: England v. Germany.

—The signs displayed at Victoria in connection with the special traffic via Dover/Ostend for the football match on December 1 were produced by the Department of the Public Relations & Publicity Officer in conjunction with the Continental Superintendent, Southern Region, and with the German Federal Railway. The accompanying illustration shows the key poster which was placed at all entrances to Victoria Central and Eastern Section stations, and gives the following information reading from left to right: (1) Group (either the Touropa travel agency, or the German Federal Railway (D.B.)); (2) the rosette colour which all the tourists were issued with and which tied up with their particular train right through to their destination; (3) the final destination of the

train, with its number; (4) time of departure; and (5) platform. Complementary to the key sign were individual posters for each train, which were placed at the particular platform from which the train would depart, asking the tourists to assemble at that point, i.e., "Assemble Here." Following on to this, similar posters were provided at Dover to direct tourists on leaving the train for embarkation.

Thos. W. Ward Limited.—At the ordinary general meeting of Thos. W. Ward Limited on November 19, Mr. H. W. Secker, Chairman, presiding, announced that the profits for the year under review were £1,807,012, compared with £1,825,439 in 1953. Turnover of almost £31,000,000 was only slightly lower than the record figure of 1953. The principal sections of the business had had a very satisfactory year. Through a policy of steady and controlled expansion by the acquisition of subsidiaries, in which over £1,000,000 had been invested in the last ten years, the group had a strong combination of interests. The total group assets were close on £14,000,000.

Stewarts and Lloyds Limited.—The consolidated trading profit of Stewarts and Lloyds Limited, after depreciation, was £12,179,661 for the year ended October 2, 1954. This compares with £12,869,980 for the previous year (53 weeks). Taxation took £5,896,244 (£7,816,317) and the net profit was £6,283,417 (£5,053,663). The amount attributable to outside shareholders was £169,238 (£146,887). The profit available to the parent company was £5,620,168 (£4,183,807). Ordinary and preference dividends take £777,006 (£682,553). £2,000,000 (£1,000,000) is earmarked for obsolescence and £2,000,000 (nil) for general reserve. Unappropriated profits are £843,162 (£2,501,254).

East Yorkshire Motor Services Limited.—At the annual general meeting of East Yorkshire Motor Services Limited, Mr. J. S. Wills, Chairman, presiding, said that in the year ended September 30, 1954, the number of passengers carried and miles run were a record. Passengers totalled

GRUPPE	ROSETTEN FARBE	RICHTUNG	ZUG NR. FU	ABFAHRT	BAHNST.
TOUROPA	GRÜN	MÜNCHEN	ZUG NR. FU 109	18.38	7
TOUROPA	GRÜN	FRANKFURT KÖLN	ZUG NR. FU 110 ZUG NR. FU 111	19.00	2
TOUROPA	GRÜN	HAMBURG	ZUG NR. FU 112	20.10	7
D.B.	BLAU	FRANKFURT	ZUG NR. FU 101	20.46	7
D.B.	BLAU	HEIDELBERG	ZUG NR. FU 301	21.06	8
D.B.	GELB	BRAUNSCHWEIG HAMBURG	ZUG NR. FU 102	21.20	7
D.B.	WEISS	DORTMUND	ZUG NR. FU 108	22.00	8
D.B.	WEISS	KÖLN	ZUG NR. FU 103	22.30	7
D.B.	WEISS	KÖLN	ZUG NR. FU 104	23.20	8

Key poster at Victoria for guidance of passengers returning to Germany after the international football match on December 1

34,500,000 and mileage was slightly over 10,000,000. Revenue, £923,000, was some £33,000 more than in the previous year. These increases were mainly attributable to the purchase of Everingham Brothers, Pocklington. The bad weather of the summer materially affected gross receipts. Fares had not risen to keep pace with increases in wages and the fuel tax. If real costs, particularly wages, continued to rise without a substantial reduction in the artificial costs represented by the fuel tax, the point would soon be reached where further increases of fares would be of no benefit. The only course then would be to reduce unremunerative services, particularly in rural areas in which services are run below cost. The Chairman referred to the delays to services caused by congested and obstructed roads. During the past year £73,000 approximately was spent on new vehicles, including lightweight buses, to mitigate the serious effects of the fuel tax. Interavailability of bus and railway tickets now applies to some season tickets.

Forthcoming Meetings

- Until end of year.—"Popular Carriage" Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.
- January 3 (Mon.).—Institute of Transport, at 80, Portland Place, London, W.1, at 6 p.m. Discussion meeting. Filmstrips as an aid to teaching transport subjects. Speakers: Mr. J. M. Leighton-Bailey and Mr. G. Musk.
- January 3 (Mon.).—Institute of Transport, Sussex Group, at the Arlington Hotel, Brighton, at 6.30 for 7 p.m. Paper on "Modern equipment for handling freight," by Mr. E. R. Whittingham.
- January 4 (Tue.).—Railway Correspondence & Travel Society, at 44, Union Street, Sheffield, 1, at 7 p.m. Paper on "The railways of France," by Mr. E. R. Williams.
- January 6 (Thu.).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas' Street, S.E.1, at 5.45 for 6 p.m. Film tour of English canals, Scotland and Ireland.
- January 6 (Thu.).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Railway quiz—questions on railway operating and administration. Question master—Mr. H. G. Bowles.
- January 6 (Thu.).—Institute of Transport, South Wales & Monmouthshire Section, at the South Wales Institute of Engineers, Cardiff, at 7.15. Paper on "Competition in transport," by Mr. Peter Wiles.
- January 7 (Mon.).—The Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. Paper on "The Birmingham & Derby Junction Railway," by Mr. C. R. Clinker.
- January 7 (Fri.).—Locomotive Society of Scotland, at 302, Buchanan Street, Glasgow, C.2, at 7.15 for 7.30 p.m. Paper on "The locomotives of Dugald Drummond," by Mr. Montague Smith.
- January 8 (Sat.).—Stephenson Locomotive Society, North Western Area, at the Manchester Geographical Society's Rooms, Deansgate, at 6.15 p.m. Talk:

"North British curiosities," by Mr. C. Hamilton Ellis.

January 10 (Mon.).—Historical Model Railway Society, at 32, Russell Road, London, W.14, at 7 p.m. Talk on "Oddities of railway traction," by Mr. R. W. Kidner.

January 10 (Mon.).—Institute of Transport, at the Jarvis Hall, 66, Portland Place, London, W.1, at 5.45 p.m. Paper on "The economies of intensified use of railway operating and motive power resources," by Mr. H. H. Phillips.

Railway Stock Market

Although holiday influences reduced business in stock markets, the trend of values was cheerful, particularly in the industrial sections, where some shares reached new high levels. Sentiment has been encouraged by company results showing a further advance in profits and dividends. Buyers were also inspired by hopes that important financial results due in the early part of the New Year may show dividends in excess of general estimates. Many results will reflect the end of E.P.L., and the benefit to progressive companies whose profits have been rising will be substantial. Although British Funds have strengthened, there was an element of caution still in evidence in this section of markets because of continued talk that a higher bank rate may be in prospect next year. Nevertheless, this seems unlikely unless there were a sharp fall in the value of sterling and it were considered advisable to raise money rates in order to attract foreign money here.

There was not much business passing in railway stocks, but they were more active than is usual at this time of year. The main feature was a sharp advance in Dorada Railway ordinary stock, business in which ranged up to 78. The recent sharp fall in price attracted buyers, and moreover, there has been renewed attention drawn to indications that the break-up-value of the stock is much in excess of its current market price. The inference is that the market price would advance sharply in the event of a take-over offer. Although a development of this kind always seems possible, any early move in this direction appears to be unlikely. Dorada ordinary stock is the type of holding which could yield very good profits if patience is exercised, but meanwhile, it seems likely the price will continue to fluctuate moderately from time to time. Costa Rica debentures have also been in demand up to the higher level of 73, while the second debentures changed hands at 59. Guayaquil & Quito first debentures were dealt in up to 61 and Cordoba Central "B" debentures at 55.

Antofagasta stocks remained active, but failed to rally after their recent minor reaction, though they were firmer with the ordinary and preference stocks at 10½ and 54½ respectively. The 4 per cent debentures marked 50½ and the 5 per cent (Bolivia) debentures 75.

Brazil Railway bonds marked 74, Taltal shares 14s. 3d. and Nitrate Rails shares were 18s. 9d. while San Paulo units have been dealt in around 3s. 3d. Mexican Central debentures were 74. In other directions, Peru Corporation debentures improved to 58½.

United of Havana second income and consolidated stocks were 36½ and 5½ respectively.

Canadian Pacifics were active again. Despite a little disappointment with the dividend, they rose further in sympathy

with the upward trend in Wall Street markets, and at 556½ reached their highest level this year to date. Canadian Pacific preference and 4 per cent debenture stocks have been firm at £73½ and £88 respectively.

Midland of Western Australia ordinary was 22½ with the 4½ per cent first debentures 92½xd and the income debenture stock 42. Emu Bay 5 per cent irredeemable debentures were again quoted at 44½ and the 4½ per cent debentures at 62½.

Activity in the shares of Tanganyika Concessions up to close on £6 reflects hopes that a dividend is in prospect on the company's big holding of shares in the Benguela Railway. At the annual meeting of Tanganyika Concessions on January 20, it is hoped to be able to announce new arrangements for financing expansion of the railway.

Road transport shares were active but firmly held with Southdown at 34s. 6d., West Riding 32s. 9d. and Lancashire Transport 61s. In other directions, B.E.T. 5s. "A" deferred units changed hands around 22s.

Engineering and kindred shares have been firmer generally with Vickers up to 38s. 3d. on the news of Vickers-Armstrong plans for decentralising its main activities into three new subsidiaries. Guest Keen, after receding, showed a small rally to 67s. Tube Investments were in favour again up to 82s. 3d. and T. W. Ward strengthened to 60s. 6d. Babcock & Wilcox were 70s. 3d. while British Aluminium strengthened to 39s. 3d.

Beyer Peacock rallied to 48s., and the shares of locomotive builders and engineers generally have been firmer. Charles Roberts 5s. shares were 9s. 9d. Hurst Nelson were 39s. 3d. at Glasgow, and North British Locomotive 20s. Birmingham Carriage were 35s. 10½d., Vulcan Foundry 32s., and Wagon Repairs 5s. shares 16s. 6d. xd. Gloucester Wagon 10s. shares strengthened to 19s.

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CLERK required for Transport Department, South London, experienced in railway rates and charges and export procedure. Good geographical knowledge essential. Age up to 30 years. Box 443, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

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